

This section describes the existing transportation systems in the Napa County (County), characterizes different modes of transportation, discusses the adopted transportation plans and policies pertinent to the transportation in the area, and effects on transportation associated with the General Plan Update. This analysis addresses County-wide and regional transportation impacts and identifies mitigation measures to lessen those impacts. **Appendix C** contains the detailed technical analysis of traffic impacts that this section is based on.

**4.4.1 EXISTING SETTING**

MODES OF TRANSPORTATION

Transportation and circulation in the County is provided through a variety of transportation modes. These modes present transportation choices for County residents and visitors depending on their destinations and reasons for transport. Existing transportation opportunities offer different travel times and levels of safety. The existing modes in the County include motorized transportation on the County’s roadway network and non-motorized transportation on bicycle and pedestrian networks. Rail transportation in the County does exist, but is almost entirely commercial and freight serving with some recreational rail service. There is no commuter rail transportation service in the County at this time.

Commuting to work is the primary use of the transportation network by County residents. Commuters utilize the transportation network at similar travel times during the morning and afternoon. During peak travel times, the County’s transportation network experiences a heavy volume of commuters utilizing all modes of available transportation. **Table 4.4-1** compares the level at which County residents utilized different transportation modes for their commute to work in 2000 in relation to all of California and the entire United States. These data show that compared to other Bay Area residents, Napa County residents commute in single-occupant vehicles 5.7% more; however, compared to all California residents, the difference is less than 1% more.

**TABLE 4.4-1  
NAPA COUNTY RESIDENT COMMUTER MODE CHOICES- 2000 CENSUS**

<b>Commuter Mode Choice</b>	<b>Napa County Residents</b>	<b>Bay Area Residents</b>	<b>California Residents</b>	<b>U.S. Residents</b>
Single-Occupant Vehicle	72.7%	67%	71.8%	75.7%
Carpool	14.8%	14%	14.5%	12.2%
Public Transit	1.4%	13%	5.1%	4.7%
Bicycling/Walking	5.0%	5%	3.7%	3.3%
Other Means	1.9%	<1%	1.0%	0.8%
Work At Home	5.1%	1%	3.8%	3.3%
Percentage Who Work Outside Napa County	22%	NA	17%	27%
Average Travel Time to Work	24.3	29.4	27.7	25.5

*Source: Napa County, BDR 2005; RIDES Associates “Commuter Profile 2005, Regional Report”*

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**Table 4.4-2** summarizes the journey-to-work data for County residents from 1980, 1990, and 2000. These data show a 2% increase in commute via automobile from 1980 to 2000; however, the number of single-occupant automobiles has increased from 69% in 1980 to 73% in 2000.

**TABLE 4.4-2  
CHANGES IN NAPA COUNTY COMMUTER MODE CHOICES FROM 1980 TO 2000**

<b>Commuter Mode Choice</b>	<b>1980</b>	<b>1990</b>	<b>2000</b>
Single-Occupant Vehicle	68.8%	75.2%	72.7%
Carpool	17.2%	12.8%	14.8%
Public Transit	1.8%	1.1%	1.4%
Bicycling/Walking	7.6%	3.9%	4.1%
Other Means	2.0%	2.2%	1.9%
Work At Home	2.6%	4.8%	5.1%
<b>Other Commute-Related Data</b>	<b>1980</b>	<b>1990</b>	<b>2000</b>
Percentage Who Work Outside Napa County	23.7%	25.4%	22.2%
Percentage Who Work Outside 9-County Bay Area	0.3%	0.9%	0.9%
Average Travel Time to Work	19.7	21.4	24.3

Source: Napa County, BDR 2005 and US Census Bureau 2000

### ROADWAY SYSTEM AND CLASSIFICATION






The County's roadway network is comprised of a hierarchy of roads with different classifications and characteristics. The normal hierarchy of roadways would include freeways, highways, arterials, collectors, and local streets. However, the facilities within Napa County do not exactly match these categories. The roadway system in Napa County is focused on a primary route, State Route (SR) 29, which enters the County from the south (from Solano County at American Canyon) and leaves to the north (towards Lake County). The primary route is augmented by east-west roads, such as SR 12 (Jamieson Canyon Road and Sonoma-Napa Highway), SR 221 (Soscol Avenue), Silverado Trail and SR 121 (NCTPA 2005). Napa also contains a grid of north-south and east-west arterial roadways. The hierarchy of roadway classifications in the County is explained below. **Figure 4.4-1** is a map presenting the County's current roadway network.

#### Freeways and Highways

The County effectively has no freeways except for a small segment of I-80 that crosses the corner of the County boundary between Fairfield and Vallejo. A short segment of State Route 29 between Trancas Avenue and the Carneros Highway (SR 121/12/29) intersection is also technically defined as a "freeway." The following roadway segments are classified as rural highways within Napa County. It should be noted that some roadways may have different classifications along their routes. Therefore, the classifications in the analysis and tables generated by the model runs are identified by roadway segment rather than the overall route.

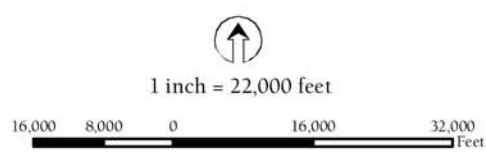


### LEGEND

- |   |                          |   |
|---|--------------------------|---|
|  | Evaluation Areas         | <b>Existing Road Classifications</b>  |
|  | City Sphere of Influence |  Arterial      |
|  | Major Roads              |  Collector     |
|  | Streams                  |  Local / Other |

### Road Classes

#### Napa County



Horizontal Datum: NAD 83,  
CA State Plane Coordinates, Zone II, feet  
Source: Napa County, 2004; EDAW, 2004

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Source: Jones & Stokes, EDAW

FIGURE 4.4-1  
EXISTING NAPA COUNTY ROADWAY NETWORK

- American Canyon Road
- Oak Knoll Avenue
- Oakville Cross Road
- Old Sonoma Road
- Silverado Trail
- State Route 12/121
- State Route 12
- State Route 128
- State Route 29
- Tubbs Lane

### **Arterials**

Most of the County's high volume, high speed roadways are arterials which range from: 1) multi-lane urban thorough fares with signalized intersections, 2) multi-lane rural expressways with signalized and unsignalized intersections, and 3) single-lane rural roads with generally unsignalized intersections. The following roadways are classified as urban or rural arterials.

- Chiles Pope Valley Road
- Flosden Road
- Napa Vallejo Highway
- Petrified Forest Road
- Silverado Trail – (within Calistoga)
- Soscol Avenue
- Spring Mountain Road
- State Route 128/29 – (within St. Helena and Calistoga)

### **Collectors**

Collector streets serve as principle traffic arteries within commercial and residential areas. Collector streets have more frequent access from abutting parcels. Access to collector streets is also provided from local streets that directly serve residential developments and commercial centers. In rural areas of the County there are many roadways that do not serve regional traffic and serve more as collectors, providing access between rural destinations and the regional roadway network. The following roadway segments are classified as collectors.

- Deer Park Road
- Howell Mountain Road
- Pope Canyon Road
- Wooden Valley Road
- Yountville Cross Road

### **Local Streets**

Local streets provide direct access to residential, commercial, industrial developments, or any other abutting land use. Local traffic uses these streets to reach collectors and arterials providing access to the regional network.

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### EXISTING ROADWAY CAPACITY AND LEVEL OF SERVICE METHODOLOGY

To assess current conditions, the County roadway system was divided into 46 roadway segments representative of the County's overall network. Traffic volumes were provided by several different agencies including Napa County, Caltrans, the Napa County Transportation Planning Agency and the cities of American Canyon, Calistoga, Napa, Saint Helena, and Yountville. The PM peak hour was selected as the time period for study because in most areas of the County this is generally the time when traffic volumes and congestion is highest. It is also the time of the day/week for which the most data exists. When data for the PM peak hour was not available, a factor was applied to daily or AM peak hour volumes to estimate the missing data based on the percentage of daily traffic occurring in the PM peak hour at other nearby roadway segments. Also, because the PM peak-hour traffic volume data represented various years and months, data from the same peak months were selected for analysis (Dowling 2006).

Traffic conditions on roads and at intersections are generally characterized by their "level of service" or LOS. LOS is a convenient way to express the ratio between volume and capacity on a given link or at a given intersection, and is expressed as a letter grade ranging from LOS A through LOS F. Each level of service is generally described as follows:

- LOS A-** Free-flowing travel with an excellent level of comfort and convenience and freedom to maneuver.
- LOS B-** Stable operating conditions, but the presence of other road users causes a noticeable, though slight, reduction in comfort, convenience, and maneuvering freedom.
- LOS C-** Stable operating conditions, but the operation of individual users is substantially affected by the interaction with others in the traffic stream.
- LOS D-** High-density, but stable flow. Users experience severe restrictions in speed and freedom to maneuver, with poor levels of comfort and convenience.
- LOS E-** Operating conditions at or near capacity. Speeds are reduced to a low but relatively uniform value. Freedom to maneuver is difficult with users experiencing frustration and poor comfort and convenience. Unstable operation is frequent, and minor disturbances in traffic flow can cause breakdown conditions.
- LOS F-** Forced or breakdown conditions. This condition exists wherever the volume of traffic exceeds the capacity of the roadway. Long queues can form behind these bottleneck points with queued traffic traveling in a stop-and-go fashion.

The methodology used for the LOS analysis was based on the Highway Capacity Manual, 2000 Edition. As discussed later, the analysis focused on road segments, rather than intersections, due to the nature of the project (i.e. a county-wide general plan rather than a site-specific development). For each of the roadway segments selected for analysis, an existing and future roadway classification was assigned. **Table 4.4-3** shows the various roadway classes and their peak hour capacities. The table is divided into three sections. Section one shows the total peak hour directional capacities for the roadway classifications for levels of service A through F. These roadway capacities are based upon procedures and criteria published by the Florida Department of Transportation (FDOT) and are used throughout the profession as standard practice for roadway capacities for determining level of service. Section two shows peak hour capacities (per lane) and finally section three shows the volume-to-capacity ratios for each roadway classification and each category of level of service. Reference is made, within these



tables, to the specific source of the data from the FDOT guidelines. To summarize, the procedures for determining future traffic volumes and calculating level of service are based upon the 2000 Highway Capacity Manual; however, the roadway capacities are based upon data developed by the Florida Department of Transportation.

It should be noted that the FDOT guidelines for peak hour capacities and level of service criteria are more fine grained or specific than the capacities utilized in the Solano/Napa County travel model. County staff and Dowling Associates evaluated the various roadway segments selected for analysis and assigned the roadway classifications and capacities derived from the FDOT guidelines that best reflect how these roadways function. The county-wide model is less discrete and uses a more generalized set of capacities to reflect the function of roadways in the network. For comparison, the generalized capacities used in the model were:

- Freeways = 1,600 to 2,000 vehicles per hour per lane
- Freeway ramps = 1,500 vehicles per hour per lane
- Expressways = 1,400 vehicles per hour per lane
- Arterials (Major)= 900 vehicles per hour per lane
- Arterials (Minor)= 800 vehicles per hour per lane
- Collectors = 500 vehicles per hour per lane

### EXISTING MODEL UNADJUSTED TRAFFIC ESTIMATES

The Solano/Napa County travel demand model was adjusted for application in this EIR. The base year model is designed to reflect 2003 conditions as the base model year, and was calibrated using 2003 data. For the year 2030 forecasts, the model was developed using land use data from several sources that was collectively found to be consistent with regional land use forecasts. This section provides the peak hour levels of service at each of the analysis segments for the base year (2003) and the original (unadjusted) 2030 model configurations. Later sections explain adjustments to the model intended to reflect 2030 conditions under each of the EIR alternatives.

#### **Weekday Traffic Conditions for Existing (2003) and Unadjusted Future (2030) Conditions**

The land use assumptions in the original (unadjusted) travel demand model for the 2030 condition reflected the most recent ABAG forecasts, at the time of model creation (ABAG Projections 2003) as modified and agreed upon by the Napa County Transportation Planning Agency (NCTPA) and the majority of communities within Napa County and Solano County. Some negotiations occurred between major jurisdictions such as the City of Napa and American Canyon regarding land use intensities, types and distributions at the time the model was created.

The unadjusted model also assumed certain transportation network improvements by the year 2030. These include:

- Widening of Jamieson Canyon Road (SR 12) between Interstate 80 and State Route 29 for four lanes.
- Improvements to the State Route 29/Napa Valley Highway Interchange
- Installation of new traffic signals within St. Helena

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- Construction of new roadway segments such as sections of Devlin Road and the planned Flosden/Newell extension to Green Island Road
- Provision of localized roadway capacity improvements such as additional turn lanes.

**Table 4.4-3** shows the peak hour levels of service for each of the analysis locations used for this EIR. Two conditions are illustrated: 1) the base year 2003 volumes, and 2) the forecasted year 2030 volumes using the unadjusted model.

Under the existing conditions (year 2003 model), 13 out of 94 locations, representing seven out of 47 different roadway segments operate over LOS E and F. Some segments operate at substandard levels in only one direction. These include:

- State Route 12/121 - Cuttings Wharf Road to Stanley Road
- State Route 12 - Lynch Road to Kelly Road
- State Route 121 - Napa/Sonoma County Line to Old Sonoma Road
- State Route 29 - Green Island Road to American Canyon Road
- State Route 29 - Oakville Grade to Madison Street
- State Route 29 - Rutherford Cross Road (SR 128) to Oakville Grade
- State Route 29 - Chaix Lane to Zinfandel Lane

Under 2030 conditions, based upon the unadjusted year 2030 model, 27 out of 94 directional locations, representing 19 out of 47 different roadway segments were projected to operate at substandard LOS due to projected growth within the County and the region. Some segments operate at substandard levels in only one direction. These include:

- American Canyon Road - I-80 to Flosden Road
- Deer Park Road - Sanitarium Rd (North) to Silverado Trail
- Flosden Road - American Canyon Road to Solano/Napa County Line
- Napa Vallejo Hwy - Kaiser Road to Highway 29(SR 29/12)
- Petrified Forest Road - Foothill Boulevard (SR 128) to Franz Valley School Road
- Soscol Avenue - First Street to Silverado Trail
- State Route 12/121 - Cuttings Wharf Road to Stanley Road
- State Route 12 - Lynch Road to Kelly Road
- State Route 121 - Wooden Valley Road to Vichy Avenue
- State Route 128 - Napa/Sonoma County Line to Tubbs Lane
- State Route 128 - Tubbs Lane to Petrified Forest Road
- State Route 128 - Petrified Forest Road to Lincoln Avenue (SR 29)
- State Route 29 - Green Island Road to American Canyon Road
- State Route 29 - Oakville Grade to Madison Street
- State Route 29 - Rutherford Cross Road (SR 128) to Oakville Grade
- State Route 29 - Chaix Lane to Zinfandel Lane
- State Route 29 - Lodi Lane to Deer Park Road
- State Route 29 - Kelly Road to Jamieson Canyon Road (SR 12)
- State Route 29 - Napa-Vallejo Hwy (SR 221) to Carneros Hwy (SR 121/12)

**TABLE 4.4-3  
PEAK HOUR LEVELS OF SERVICE – 2003 AND UNADJUSTED 2030 MODEL**

Number of Segment	Segment Descriptions			Level Of Service	
	RoadName	Segment Limit North / East	Segment Limit South / West	Existing 2003 Conditions	Original Year 2030 Model
1	AMERICAN CANYON ROAD	I-80	Flosden Road	LOS D	LOS F
2	AMERICAN CANYON ROAD	I-80	Flosden Road	LOS D	LOS E
3	CHILES POPE VALLEY RD	Pope Canyon Road	Lower Chiles Valley Road	LOS A	LOS B
4	CHILES POPE VALLEY RD	Pope Canyon Road	Lower Chiles Valley Road	LOS A	LOS A
5	DEER PARK RD	Sanitarium Rd (North)	Silverado Trail	LOS C	LOS E
6	DEER PARK RD	Sanitarium Rd (North)	Silverado Trail	LOS C	LOS C
7	DEER PARK ROAD	Silverado Trail	St. Helena Highway (SR 29/128)	LOS C	LOS D
8	DEER PARK ROAD	Silverado Trail	St. Helena Highway (SR 29/128)	LOS C	LOS C
9	FLOSDEN ROAD	American Canyon Road	Napa/Solano County Line	LOS C	LOS D
10	FLOSDEN ROAD	American Canyon Road	Napa/Solano County Line	LOS C	LOS F
11	HOWELL MOUNTAIN RD	Pope Valley Rd	N White Cottage Rd	LOS A	LOS C
12	HOWELL MOUNTAIN RD	Pope Valley Rd	N White Cottage Rd	LOS A	LOS A
13	NAPA VALLEJO HWY	Kaiser Rd	Highway 29(SR 29/12)	LOS D	LOS F
14	NAPA VALLEJO HWY	Kaiser Rd	Highway 29(SR 29/12)	LOS D	LOS D
15	OAK KNOLL AVE	Big Ranch Rd	Highway 29	LOS C	LOS C
16	OAK KNOLL AVE	Big Ranch Rd	Highway 29	LOS C	LOS C
17	OAKVILLE CROSS RD	Napa River	Highway 29	LOS A	LOS C
18	OAKVILLE CROSS RD	Napa River	Highway 29	LOS B	LOS B
19	OLD SONOMA ROAD	Buhman Avenue	Carneros Highway (SR 121/12)	LOS C	LOS C
20	OLD SONOMA ROAD	Buhman Avenue	Carneros Highway (SR 121/12)	LOS B	LOS B
21	PETRIFIED FOREST ROAD	Foothill Boulevard (SR 128)	Franz Valley School Road	LOS C	LOS F
22	PETRIFIED FOREST ROAD	Foothill Boulevard (SR 128)	Franz Valley School Road	LOS C	LOS C
23	POPE CANYON RD	Berryessa-Knoxville Rd	Chiles-Pope Valley Rd	LOS A	LOS B
24	POPE CANYON RD	Berryessa-Knoxville Rd	Chiles-Pope Valley Rd	LOS A	LOS A
25	SILVERADO TRL	Oak Knoll Ave	Hardman Ave	LOS C	LOS C
26	SILVERADO TRL	Oak Knoll Ave	Hardman Ave	LOS C	LOS D
27	SILVERADO TRL	Sage Canyon Rd (SR 128)	Yountville Cross Rd	LOS C	LOS C
28	SILVERADO TRL	Sage Canyon Rd (SR 128)	Yountville Cross Rd	LOS C	LOS D
29	SILVERADO TRL	Pope St	Zinfandel Ln	LOS C	LOS C
30	SILVERADO TRL	Pope St	Zinfandel Ln	LOS C	LOS D
31	SILVERADO TRL	Bale Ln	Deer Park Rd	LOS C	LOS C
32	SILVERADO TRL	Bale Ln	Deer Park Rd	LOS C	LOS C
33	SILVERADO TRL	Calistoga City Limits	Lincoln Ave (SR 29)	LOS C	LOS C
34	SILVERADO TRL	Calistoga City Limits	Lincoln Ave (SR 29)	LOS C	LOS C
35	SOSCOL AVE	First St	Silverado Trail	LOS D	LOS F
36	SOSCOL AVE	First St	Silverado Trail	LOS D	LOS D
37	SPRING MOUNTAIN ROAD	St. Helena City Limit	Langtry Road	LOS A	LOS C
38	SPRING MOUNTAIN ROAD	St. Helena City Limit	Langtry Road	LOS A	LOS B
39	STATE HIGHWAY 12/121	Cuttings Wharf Road	Stanely Road	LOS D	LOS F
40	STATE HIGHWAY 12/121	Cuttings Wharf Road	Stanely Road	LOS F	LOS F
41	STATE HIGHWAY 12	Lynch Road	Kelly Road	LOS F	LOS F
42	STATE HIGHWAY 12	Lynch Road	Kelly Road	LOS E	LOS B
43	STATE HIGHWAY 121	Wooden Valley Rd	Vichy Ave	LOS C	LOS F
44	STATE HIGHWAY 121	Wooden Valley Rd	Vichy Ave	LOS C	LOS C
45	STATE HIGHWAY 121	Circle Oaks Dr	Wooden Valley Rd	LOS B	LOS C
46	STATE HIGHWAY 121	Circle Oaks Dr	Wooden Valley Rd	LOS C	LOS C



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**TABLE 4.4-3 CONTINUED  
PEAK HOUR LEVELS OF SERVICE – 2003 AND UNADJUSTED 2030 MODEL**

Segment Number	Segment Descriptions			Level Of Service	
	RoadName	Segment Limit North / East	Segment Limit South / West	Existing 2003 Conditions	Original Year 2030 Model
47	STATE ROUTE 121	Napa/Sonoma County Line	Old Sonoma Rd	LOS F	LOS C
48	STATE ROUTE 121	Napa/Sonoma County Line	Old Sonoma Rd	LOS F	LOS C
51	STATE ROUTE 128	Napa/Sonoma County Line	Tubbs Lane	LOS C	LOS C
52	STATE ROUTE 128	Napa/Sonoma County Line	Tubbs Lane	LOS C	LOS F
53	STATE ROUTE 128	Tubbs Ln	Petrified Forest Rd	LOS C	LOS E
54	STATE ROUTE 128	Tubbs Ln	Petrified Forest Rd	LOS C	LOS C
55	STATE ROUTE 128	Petrified Forest Rd	Lincoln Ave (SR 29)	LOS C	LOS D
56	STATE ROUTE 128	Petrified Forest Rd	Lincoln Ave (SR 29)	LOS C	LOS F
57	STATE ROUTE 128	Napa River	St Helena Hwy (SR 29)	LOS C	LOS C
58	STATE ROUTE 128	Napa River	St Helena Hwy (SR 29)	LOS B	LOS B
59	STATE ROUTE 128	Chiles-Pope Valley Road	Silverado Trail	LOS C	LOS C
60	STATE ROUTE 128	Chiles-Pope Valley Road	Silverado Trail	LOS C	LOS C
61	STATE ROUTE 128	Monticell Road (SR 121)	Berryessa-Knoxville Road	LOS B	LOS B
62	STATE ROUTE 128	Monticell Road (SR 121)	Berryessa-Knoxville Road	LOS B	LOS C
63	STATE ROUTE 128	Napa/Yolo County Line	State ROUTE 121	LOS A	LOS C
64	STATE ROUTE 128	Napa/Yolo County Line	State ROUTE 121	LOS A	LOS A
65	STATE ROUTE 29	Napa/Lake County Line	Tubbs Lane	LOS C	LOS C
66	STATE ROUTE 29	Napa/Lake County Line	Tubbs Lane	LOS C	LOS C
67	STATE ROUTE 29	Green Island Rd	American Canyon Rd	LOS F	LOS F
68	STATE ROUTE 29	Green Island Rd	American Canyon Rd	LOS F	LOS F
69	STATE ROUTE 29	California Dr	Oak Knoll Ave	LOS C	LOS C
70	STATE ROUTE 29	California Dr	Oak Knoll Ave	LOS C	LOS C
71	STATE ROUTE 29	Oakville Grade	Madison St	LOS F	LOS F
72	STATE ROUTE 29	Oakville Grade	Madison St	LOS F	LOS F
73	STATE ROUTE 29	Rutherford Cross Rd (SR 128)	Oakville Grade	LOS E	LOS F
74	STATE ROUTE 29	Rutherford Cross Rd (SR 128)	Oakville Grade	LOS F	LOS F
75	STATE ROUTE 29	Chaix Ln	Zinfandel Ln	LOS F	LOS F
76	STATE ROUTE 29	Chaix Ln	Zinfandel Ln	LOS F	LOS F
77	STATE ROUTE 29	Lodi Lane	Deer Park Rd	LOS D	LOS F
78	STATE ROUTE 29	Lodi Lane	Deer Park Rd	LOS D	LOS F
79	STATE ROUTE 29	Kelly Rd	Jamieson Cyn Rd (SR 12)	LOS C	LOS F
80	STATE ROUTE 29	Kelly Rd	Jamieson Cyn Rd (SR 12)	LOS C	LOS F
81	STATE ROUTE 29	Napa-Vallejo Hwy (SR 221)	Kelly Rd	LOS C	LOS C
82	STATE ROUTE 29	Napa-Vallejo Hwy (SR 221)	Kelly Rd	LOS C	LOS B
83	STATE ROUTE 29	Napa-Vallejo Hwy (SR 221)	Carneros Hwy(SR 121/12)	LOS C	LOS F
84	STATE ROUTE 29	Napa-Vallejo Hwy (SR 221)	Carneros Hwy(SR 121/12)	LOS C	LOS C
85	STATE ROUTE 29	Imola Ave (SR 121)	Carneros Hwy(SR 121/12)	LOS C	LOS D
86	STATE ROUTE 29	Imola Ave (SR 121)	Carneros Hwy(SR 121/12)	LOS C	LOS B
87	TUBBS LN	Highway 29	Highway 128	LOS C	LOS D
88	TUBBS LN	Highway 29	Highway 128	LOS C	LOS C
89	WOODEN VALLEY RD	Monticello Rd (SR 121)	Napa/Solano Co Line	LOS A	LOS B
90	WOODEN VALLEY RD	Monticello Rd (SR 121)	Napa/Solano Co Line	LOS C	LOS C
91	YOUNTVILLE CROSS RD	Silverado Trail	Yountville Town Limits	LOS C	LOS C
92	YOUNTVILLE CROSS RD	Silverado Trail	Yountville Town Limits	LOS C	LOS C
93	ZINFANDEL LN	Silverado Trail	St Helena Hwy (SR 29&128)	LOS C	LOS C
94	ZINFANDEL LN	Silverado Trail	St Helena Hwy (SR 29&128)	LOS C	LOS B

Source: Dowling Associates 2006

### **Evolution of Existing Roadway Operations**

Based on a comparison of traffic volumes from the 1983 Napa County General Plan and the more recent traffic volumes provided by Caltrans for the TIEP Draft EIR (NCTPA 2005), traffic volumes on State Routes entering and exiting Napa County have increased by 128 percent, or 6 percent annually, since 1982. This increase in traffic is largely due to growth in portions of Napa and Solano County, and changes in jobs/housing balance. This growth has caused traffic volumes on SR 12, connecting between American Canyon and Solano County to more than triple over the last 20 years. Overall, the population of Napa County increased by approximately 25 percent, or 1.3 percent annually, between 1980 and 2000. This suggests that travel into and out of Napa County has outpaced the growth in Napa County population by nearly a five to one margin.

### **Weekend Traffic Estimates – Existing Conditions**

The Solano/Napa transportation model does not forecast weekend traffic. The model only addresses weekday traffic volumes. To estimate weekend traffic along selected roadway segments in Napa County, the following process was used.

The traffic volumes (raw counts) from the BDR and other sources (Caltrans, Napa County and NCTPA) were reviewed to determine the ratio of weekend to weekday traffic. Generally, the weekday volumes were higher than the weekend flows. There were exceptions, generally on the secondary arterial/collector roadways. **Figure 4.4-2** shows the locations where weekend and weekday counts were available and the difference between weekend and weekday traffic. The data is shown by direction (see legend) with the northbound/eastbound link listed first and the southbound/westbound link listed second for each named roadway. For all segments where the bar is above the zero line, the weekend traffic is greater than during the weekday. Below the zero line, weekday traffic is greater than weekend traffic. **Table 4.4-4** provides additional descriptions of the data shown in **Figure 4.4-2**. Given the wide number of fluctuations between the weekday and weekend traffic volumes, it is not possible to apply a specific factor to the weekday traffic to quantify weekend traffic volumes. It should be noted however, the changes in future traffic will likely follow the same trends as today unless there is a dramatic shift in land use. That is, in those locations where the existing weekend traffic is higher than the weekday, the future weekend traffic is also likely to be higher than the projected weekday traffic.

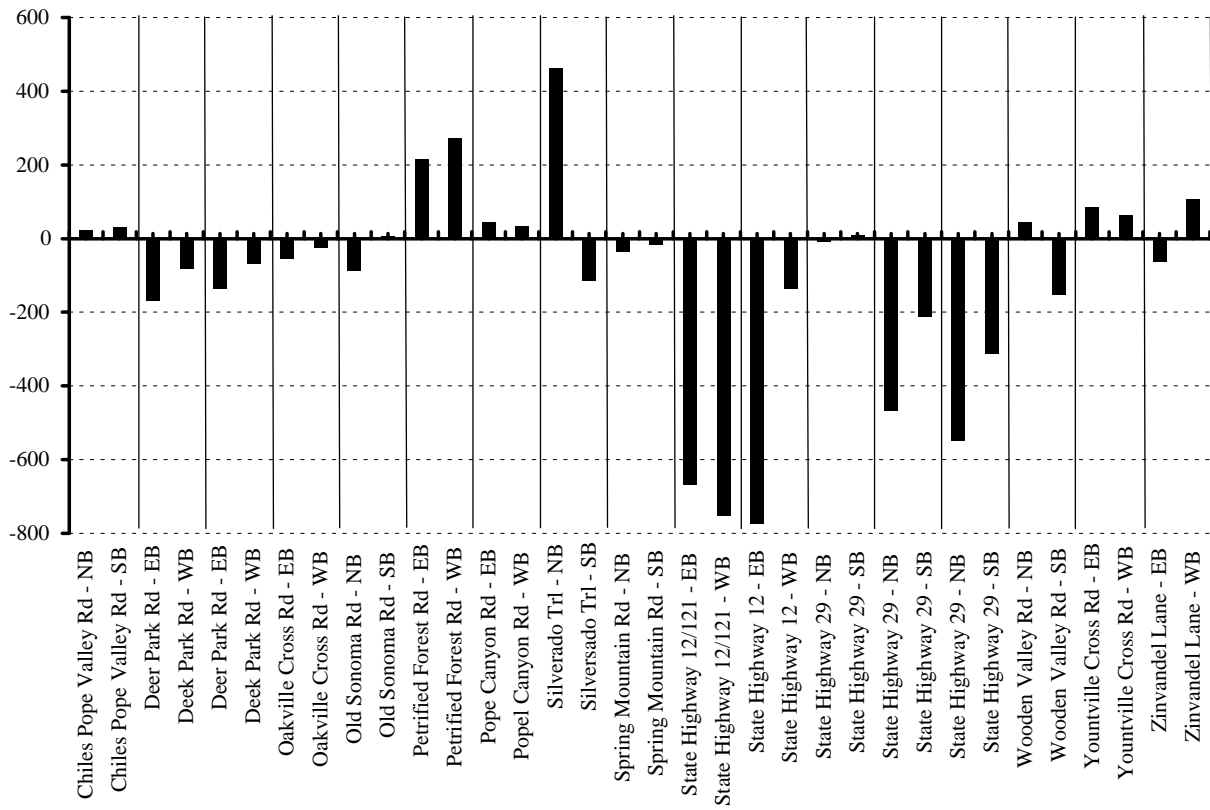
### **Monthly Variations in Traffic Volumes**

Napa County experiences variations in traffic volumes and traffic congestion that are attributable to the agricultural economy and the number of tourists that regularly travel the roads within the county. Some roadways experience increased volumes in summer months due to tourists, and some roadways experience increased volumes in the fall (primarily October) due to harvest. In both cases, many of the seasonal trips occur outside of the PM Peak Hour.

Also, it should be noted that the County's traffic model does not factor in adjustments for special events at wineries, the County fair or peak summer days at Lake Berryessa. These types of special events are isolated, may include special traffic controls, and are not considered part of the typical ambient traffic conditions in the County. Generally, special events are evaluated on a case-by-case basis and can be required to implement special transportation services which are intended to reduce traffic levels and manage the flow of traffic to and from such events.

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**Figure 4.4-2  
Weekend Minus Weekday Peak Hour Traffic**



Source: Dowling Associates 2006

**TABLE 4.4-4  
WEEKDAY VERSUS WEEKEND TRAFFIC VOLUME DATA**

Number of Segment	Direction A-B or B-A	Segment Descriptions RoadName	Segment Limit North / East	Segment Limit South / West	Weekday Peak Hour			Weekend Peak Hour			Weekend/ Weekday
					AM	PM	AM+PM	AM	PM	AM+PM	AM+PM
3	NB/EB	CHILES POPE VALLEY RD	Pope Canyon Road	Lower Chiler Valley Road	16	58	74	49	48	97	1.31
4	SB/WB	CHILES POPE VALLEY RD			16	56	72	36	66	102	1.42
5	NB/EB	DEER PARK RD	Sanitarium Rd (North)	Silverado Trail	199	384	583	166	249	415	0.71
6	SB/WB	DEER PARK RD			235	309	544	242	220	462	0.85
7	NB/EB	DEER PARK ROAD	Silverado Trail	St. Helena Highway (SR 29/128)	167	260	427	121	171	292	0.68
8	SB/WB	DEER PARK ROAD			183	186	369	142	159	301	0.82
17	NB/EB	OAKVILLE CROSS RD	Napa River	Highway 29	73	111	184	39	90	129	0.70
18	SB/WB	OAKVILLE CROSS RD			92	141	233	84	123	207	0.89
19	NB/EB	OLD SONOMA ROAD	Buhman Avenue	Carneros Highway (SR 121/12)	107	245	352	94	170	264	0.75
20	SB/WB	OLD SONOMA ROAD			104	119	223	128	100	228	1.02
21	NB/EB	PETRIFIED FOREST ROAD	Foothill Boulevard (SR 128)	Franz Valley School Road	n/a	471	471	276	411	687	1.46
22	SB/WB	PETRIFIED FOREST ROAD			n/a	452	452	353	373	726	1.61
23	NB/EB	POPE CANYON RD	Berryessa-Knoxville Rd	Chiles-Pope Valley Rd	9	4	13	21	35	56	4.31
24	SB/WB	POPE CANYON RD			22	20	42	32	43	75	1.79
25	NB/EB	SILVERADO TRL	Oak Knoll Ave	Hardman Ave	n/a	387	387	424	425	849	2.19
26	SB/WB	SILVERADO TRL			n/a	966	966	327	524	851	0.88
37	NB/EB	SPRING MOUNTAIN ROAD	St. Helena City Limit	Langtry Road	26	57	83	20	27	47	0.57
38	SB/WB	SPRING MOUNTAIN ROAD			35	53	88	42	30	72	0.82
39	NB/EB	STATE HIGHWAY 12/121	Cuttings Wharf Road	Stanely Road	872	1032	1904	406	829	1235	0.65
40	SB/WB	STATE HIGHWAY 12/121	Cuttings Wharf Road	Stanely Road	760	1067	1827	213	862	1075	0.59
41	NB/EB	STATE HIGHWAY 12	Lynch Road	Kelly Road	1155	1375	2530	627	1131	1758	0.69
42	SB/WB	STATE HIGHWAY 12	Lynch Road	Kelly Road	604	531	1135	180	820	1000	0.88
65	NB/EB	STATE HIGHWAY 29	Napa/Lake County Line	Tubbs Lane	74	202	276	63	205	268	0.97
66	SB/WB	STATE HIGHWAY 29	Napa/Lake County Line	Tubbs Lane	188	126	314	60	262	322	1.03
71	NB/EB	STATE HIGHWAY 29	Oakville Grade	Madison St	1064	724	1788	399	923	1322	0.74
72	SB/WB	STATE HIGHWAY 29	Oakville Grade	Madison St	491	1157	1648	273	1162	1435	0.87
75	NB/EB	STATE HIGHWAY 29	Chaix Ln	Zinfandel Ln	1065	854	1919	389	982	1371	0.71
76	SB/WB	STATE HIGHWAY 29	Chaix Ln	Zinfandel Ln	685	1006	1691	262	1116	1378	0.81
89	NB/EB	WOODEN VALLEY RD	Monticello Rd (SR 121)	Napa/Solano Co Line	71	72	143	97	89	186	1.30
90	SB/WB	WOODEN VALLEY RD			43	305	348	65	131	196	0.56
91	NB/EB	YOUNTVILLE CROSS RD	Silverado Trail	Yountville Town Limits	n/a	105	105	83	108	191	1.82
92	SB/WB	YOUNTVILLE CROSS RD			n/a	190	190	101	153	254	1.34
93	NB/EB	ZINFANDEL LN	Silverado Trail	St Helena Hwy (SR 29&128)	n/a	200	200	68	68	136	0.68
94	SB/WB	ZINFANDEL LN			n/a	119	119	135	89	224	1.88

Source: Dowling Associates 2006

## 4.4 TRANSPORTATION

### Transportation Safety

#### Roadway Collision

California's Statewide Integrated Traffic Records System (SWITRS) collects, records and processes detailed collision data for the State. Uniform data collection tools and methods are used to produce meaningful statistics to improve roadway conditions and monitor the effectiveness of enforcement efforts. **Table 4.4-5** presents the top 20 locations where traffic collisions were reported in the County. The data is presented in the table by the proximity to the nearest intersection. Due to the rural nature of many roadways in the County, the location of the collision may be a considerable distance from the nearest intersection. As shown in the table nearly 75% of the collisions occurring within the top 20 general areas for traffic collisions of the County occurred on SR 29, including 3 fatalities.

**TABLE 4.4-5**  
**TOP 20 COLLISION LOCATIONS IN NAPA COUNTY BY NEAREST INTERSECTION**  
**JANUARY 2002 THROUGH DECEMBER 2004**

Nearest Intersection	Collisions	Fatal	Injury
<b>SR 29/Tubbs Lane</b>	<b>218</b>	<b>1</b>	<b>84</b>
<b>SR 29/SR 221</b>	<b>177</b>	<b>0</b>	<b>55</b>
SR 29/SR 12	125	0	46
SR29/SR121	107	1	32
SR 29/Imola Avenue	97	0	21
Jefferson Street/Pueblo Street	88	0	26
SR29/Trancas Street	84	0	27
SR 29/American Canyon Road	69	0	15
Jefferson Street/Trancas Street	68	0	17
<b>SR 121/Wooden Valley Road</b>	<b>68</b>	<b>0</b>	<b>32</b>
<b>SR 12/Kirkland Ranch Road</b>	<b>67</b>	<b>2</b>	<b>23</b>
SR 29/Redwood Road	62	0	18
<b>SR 29/South Kelly Road</b>	<b>60</b>	<b>0</b>	<b>28</b>
SR 29/Rio Del Mar	54	0	16
SR 29/1 <sup>st</sup> Street	53	0	13
SR 29/Trower Avenue	49	0	18
<b>SR 128/Silverado Trail</b>	<b>48</b>	<b>0</b>	<b>23</b>
SR29/Lincoln Avenue	46	1	20
Lincoln Avenue/Soscol Avenue	45	1	14
Redwood Road/Solano Avenue	44	0	8

***Bolded** intersections fall under unincorporated Napa County jurisdiction, not within City limits*

*Source: Napa County, BDR 2005 and 2002-2004 SWITRS Data*

### Intersection Collisions

**Table 4.4-6** presents the 20 intersections in the County with most traffic collisions. Intersections with higher traffic volumes would be expected to have a proportionally higher number of collisions. Therefore, although an intersection in the table may have a high number of collisions, it does not necessarily indicate a safety concern.

**TABLE 4.4-6  
TOP 20 INTERSECTION TRAFFIC COLLISION LOCATIONS NAPA COUNTY  
JANUARY 2002 THROUGH DECEMBER 2004**

Intersection	Collisions	Fatal	Injury
SR 29/SR121	64	1	29
<b>SR 29/SR 221</b>	<b>58</b>	<b>0</b>	<b>13</b>
Jefferson Street/Pueblo Street	54	0	18
SR 29/Trancas Street	54	0	19
SR 29/American Canyon Road	53	0	9
SR 29/Imola Avenue	51	0	13
SR 29/Redwood Road	48	0	12
Jefferson Street/Trancas Street	45	0	11
SR 29/Rio Del Mar	45	0	14
<b>SR 29/SR 12</b>	<b>43</b>	<b>0</b>	<b>20</b>
Lincoln Avenue/Main Street	40	0	14
SR 29/1st Street	39	0	9
Solano Avenue/Trowler Avenue	38	1	18
Jefferson Street/Lincoln Avenue	37	0	10
SR 29/Trower Avenue	32	0	12
California Boulevard/Lincoln Avenue	30	0	8
Redwood Road/Solano Avenue	29	0	5
Lincoln Avenue/Soscol Avenue	28	0	9
American Canyon Road/Flosden Road	25	1	9
<b>SR 29/South Kelly Road</b>	<b>24</b>	<b>0</b>	<b>14</b>

**Bolded** intersections fall under unincorporated Napa County jurisdiction, not within City limits

Source: Napa County, BDR 2005 and 2002-2004 SWITRS Data

### Pedestrian and Bicycle Collisions

Pedestrian/vehicle collisions do occur at several intersections in the County. Pedestrian collision data was obtained from the SWITRS database for collisions reported between January 2002 and December 2004. A total of 131 vehicular collisions involving a pedestrian were reported during this 3-year period, of which 113 resulted in injuries. Three of these accidents resulted in death. The intersection of Clay/Jefferson Streets in the City of Napa had five pedestrian-related collisions, the highest of any intersection in the County. However, none of these collisions were fatal. **Table 4.4-7** presents the top intersections for pedestrian related collisions for accidents resulting in at least two injuries or one death between January 2002 and December 2004.



## 4.4 TRANSPORTATION

**TABLE 4.4-7  
TOP PEDESTRIAN-RELATED COLLISIONS INTERSECTION LOCATION  
JANUARY 2002 THROUGH DECEMBER 2004**

Intersection	Collisions	Fatal	Injury
Clay Street/Jefferson Street	5	0	5
Jefferson Street/Pueblo Avenue	3	0	3
SR 29/Washington Street	3	0	2
1st Street/Seminary Street	2	0	2
Jefferson Street/Rubicon Street	2	0	2
Jefferson Street/Sheridan Street	2	0	2
Lincoln Avenue/Marin Street	2	0	2
3rd Street/Soscol Avenue	2	0	1
Beard Road/Pueblo Avenue	2	0	1
Central Avenue/Jefferson Street	2	0	1
SR 29/Fulton Lane	2	0	1
Mariposa/Pope Street	1	1	0
<b>SR 29/Airport Road</b>	<b>1</b>	<b>1</b>	<b>0</b>

***Bolded** intersections fall under unincorporated Napa County jurisdiction, not within City limits  
Source: Napa County, BDR 2005 and 2002-2004 SWITRS Data*

**Table 4.4-8** presents the top intersections for bicycle related collisions for accidents where at least two bicycle collisions have occurred between January 2002 and December 2004. None of the reported collisions were fatal.

**TABLE 4.4-8  
TOP BICYCLE-RELATED COLLISIONS INTERSECTION LOCATIONS  
JANUARY 2002 THROUGH DECEMBER 2004**

Intersection	Collisions	Fatal	Injury
California Boulevard/Trancas Street	4	0	3
Lincoln Avenue/Soscol Avenue	4	0	2
Jefferson Street/Pueblo Avenue	3	0	3
SR 29/1 <sup>st</sup> Street	3	0	2
SR 29/Trancas	3	0	2
1 <sup>st</sup> Street/Freeway Drive	3	0	1
2 <sup>nd</sup> Street/Main Street	2	0	2
3 <sup>rd</sup> Street/Coombs Street	2	0	2
American Canyon Road/Broadway	2	0	2
Central Avenue/Jefferson Street	2	0	2
Claremont Way/Jefferson Street	2	0	2

Intersection	Collisions	Fatal	Injury
Gasser Drive/Imola Avenue	2	0	2
Imola Avenue/Soscol Avenue	2	0	2
Jefferson Street/Sheridan Avenue	2	0	2
<b>Mount Veeder Road/Redwood Road</b>	<b>2</b>	<b>0</b>	<b>2</b>
Pueblo Avenue/Soscol Avenue	2	0	2
<b>SR 29/Whitehall Lane</b>	<b>2</b>	<b>0</b>	<b>2</b>
Trancas Street/Villa Lane	2	0	2

***Bolded** intersections fall under unincorporated Napa County jurisdiction, not within City limits  
Source: Napa County, BDR 2005 and 2002-2004 SWITRS Data*

**PUBLIC TRANSIT SERVICES**

Public transit services, though not a major travel mode in Napa County, are available in all of the cities and in much of the unincorporated areas of the County. Fixed-route local, intercity and demand-response service and paratransit service are provided by the following transit providers.

**VINE**

The VINE provides intra- and inter-city fixed route services. VINE operates in the City of Napa, between Calistoga and the City of Vallejo (in Solano County), and between St. Helena and Santa Rosa (in Sonoma County).

VINE Go Paratransit Service

The VINE Go Paratransit Service provides curb-to-curb service for residents countywide who live within ¾ mile of a bus route.

**American Canyon Transit Fixed-Route Service**

The American Canyon Transit provides fixed-route service in the city of American Canyon.

**Saint Helena Shuttle**

The Saint Helena Shuttle operates a fixed-route service in the City and to St. Helena Hospital.

**Yountville Shuttle**

The Yountville Shuttle provides a fixed-route shuttle throughout the town of Yountville, including to the Veterans’ Home.

**Calistoga Handy Van On Demand Service**

The Calistoga Handy Van On Demand provides shuttle service in Calistoga and the various VINE system connections.

## **4.4 TRANSPORTATION**

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### **Downtown Napa Trolley**

The Downtown Napa Trolley provides free shuttle service in downtown Napa.

### **AMTRAK**

AMTRAK does not provide passenger rail service within the County. However, AMTRAK does offer fixed-route connector buses between two locations in the County and the nearest Amtrak station in Martinez, California. Passengers boarding AMTRAK at Martinez can connect to trains traveling to the Bay Area, the Central Valley, along the West Coast to Seattle and across the country to the East Coast.

### **Taxi Service**

Private taxis and shuttles are available in the County and account for the remainder of the public transportation service in the County. Taxis are the only form of public transportation available at night.

### **California Northern Railroad**

The California Northern Railroad operates (CFNR) 216.3 miles of ex-Southern Pacific track and part of the ex-Northern Pacific tracks. CFNR has its headquarters at the Lombard Yard in American Canyon and operates trains in Napa over 7.1 miles of tracks.

### **AREA AIRPORTS**

Ten airports are located within a 25-nautical mile radius of Napa County Airport. Of these, seven are public-use facilities: Buchanan Field, Gness Field, Nut Tree, Petaluma, Angwin-Parrett Field, Sonoma Skypark, and Sonoma Valley; two are private-use facilities: San Rafael, Travis Aero Club; and one is a military airfield: Travis Air Force Base. Public access to the private facilities requires prior permission of the operator.

### **Napa County Airport**

Napa County Airport is located on the periphery of the very complex San Francisco Bay Area Class B airspace environment. The airspace in the vicinity of the Airport, as well as the operations of air traffic using the Airport, are significantly influenced by the complex interaction of aircraft carriers operating to and from the Bay Area's numerous other airports, general aviation, and military airports. See Section 4.2 (Land Use) for details on the Airport Master Plan and Section 4.9 (Human Health/Risk of Upset) for discussion of aviation safety.

### **Angwin-Parrett Field Airport**

Virgil O Parrett Field is located in the unincorporated community of Angwin and is owned by Pacific Union College. Although the airport is privately owned, it is open to the public.

### **WATERWAY TRANSPORTATION**

The two major waterways in Napa County include Lake Berryessa, a man-made reservoir which serves as a domestic water supply reservoir, and Napa River, which flows 55 miles from Mt. St. Helena to San Pablo Bay. The lake is used for recreational purposes, and the river functions as a

recreational waterway. The river is dredged part way up from San Pablo Bay and can accommodate barges up to 100 feet wide, which provides the opportunity for industrial transportation on the river, particularly for the American Canyon area. Boats can motor up the Napa River as far as the First Street Bridge in the City of Napa. The Napa River played an important role in the early days of Napa County's development, providing a means to move agricultural and other products to market.

### NAPA VALLEY RAILROAD (WINE TRAIN)

The Napa Valley Wine Train Incorporated was formed in 1984. It purchased 21 miles of track and 125 acres of right-of-way land for \$2.25 million in April 1987 from Southern Pacific, which had owned the line since 1885, when it purchased the Napa Valley Railroad, which had been founded in 1864. The recreational line includes 36 miles of track which runs from Roctram (south of the city of Napa) to north of the Krug Winery. Passengers on the Wine Train roll by 26 different wineries on their trip, which typically lasts about three hours, then return back to the downtown Napa station from which they departed.

### NON-MOTORIZED TRANSPORTATION

With relatively long distances between cities in the County, commuting between Cities on a bicycle or as a pedestrian is difficult. Potential does exist for intra-city commuting via bicycle, as most cities in the county are relatively flat. The unique views and generally mild weather in the County does attract recreational cyclists. Pedestrian travel is possible in most cities within the County. Although most of the cities are small, they are relatively dense, with pedestrian friendly streets. The following sections discuss the existing bicycle and pedestrian networks in the County.

#### **Pedestrian Network**

The County's pedestrian network consists primarily of sidewalks and multi-use trails. Sidewalks are usually provided in developed commercial and residential areas and are rarely provided in the low-density rural areas of the County. Class I bicycle trails are usually designed as multi-use trails that can be shared with pedestrians. Pedestrian activity is often considered an uncounted mode, although over 4 percent of Napa County residents actually walk to work (NCTPA 2005). Pedestrian facilities also include crosswalks and pedestrian-actuated signals at major intersections within developed areas.

#### **Bicycle Network**

Napa County has several off-street trails and paths, as well as on street bicycle lanes and routes. Bicycle facilities are classified as follows:

*Class I Bikeway (Bike Path).* A completely separate facility designated for the exclusive use of bicycles and pedestrians, with vehicle and pedestrian cross-flow minimized.

*Class II Bikeway (Bike Lane).* A striped lane designated for the use of bicycles on a street or highway. Vehicle parking and vehicle pedestrian/ cross-flow are permitted at designated locations.

*Class III Bikeway (Bike Route).* A route designated by signs of pavement markings for bicyclists within the vehicular travel lane (i.e. shared use) of a roadway.

## 4.4 TRANSPORTATION

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**Figure 4.4-3** is a map presenting the County's bicycle network. While bicycle facilities are often located in newer neighborhoods or developments, older neighborhoods and rural areas of the County often lack bicycle amenities. An example of this network is the many east-west roadways in the County that cross rivers and creeks on very narrow bridges. The narrow bridges squeeze cars and bicyclists together, forcing the bicyclists or cars to yield right-of-way to the other. An update to the Napa Countywide Bicycle Plan was adopted in 2003.

### 4.4.2 REGULATORY FRAMEWORK

#### FEDERAL

The Safe, Accountable, Flexible, Efficient Transportation Equity Act, – a Legacy for Users, or SAFETEA-LU, was approved by Congress in July 2005 then signed into law by the President in August 2005. This law provides \$244 billion in guaranteed funding for federal surface transportation programs for the next 5 years, an average annual increase of 35% from previous years. This law replaces the Transportation Equity Act for the 21st Century (TEA-21), which expired in September 2003.

#### STATE

The California Transportation Commission (CTC) is responsible for the programming and allocation of funds for the construction of highway, passenger rail and transit improvements throughout California. The CTC also advises and assists the Secretary of Business, Transportation and Housing Agency and the Legislature in formulating and evaluating state policies and plans for California's transportation programs. The State Transportation Improvement Program (STIP) is a multi-year capital improvement program of transportation projects on and off the State Route System, funded with revenues from the State Route Account and other funding sources. STIP programming generally occurs every two years. State guidelines generally set the framework for regional and local planning efforts. State law requires the regional and local planning agencies to develop and submit a Regional Transportation Improvement Program (RTIP) every 3 years to the California Transportation Commission (CTC) and the California Department of Transportation (Caltrans). In the Bay Area, this plan is prepared by MTC (Metropolitan Transportation Commission), the Regional Planning Agency, in cooperation with nine countywide Congestion Management Agencies (CMAs). The MTC in the case of Napa County, has the option of submitting a previous RTIP if it is deemed adequate, or submitting a revised version. MTC writes the RTIP, which along with Caltrans ITIP (Interregional Transportation Improvement Plan) goes to form the STIP, with the parts selected (to greater and lesser degrees) by the CTC. MTC is the RTPA (Regional Transportation Planning Agency). The RTIP is prepared every odd numbered year for STIP adoption by the CTC in even numbered years. Large capital expansion projects like the Trancas/29 interchange are funded by the STIP.





### REGIONAL

The MTC's *Transportation 2030 Plan for the San Francisco Bay Area* (2030 Plan) is a long-range transportation plan for the nine-county San Francisco Bay Area (San Francisco, Alameda, Contra Costa, San Mateo, Santa Clara, Napa, Solano, Marin, and Sonoma Counties). The 2030 Plan sets priority for funding and implementation of transportation-related projects in the Bay Area. This Regional Transportation Plan is federally mandated; project programming is restricted to funding that can reasonably be expected to be available over the RTP period. Projects cannot use federal, or in many cases, state funds unless it is specifically listed or is consistent with the RTP. The RTP must be checked for conformance with the region's Air Quality Plan to ensure that the projects and programs in the RTP meet the air quality improvement and maintenance goals and policies required by the federal government.

The 2005 Transportation Improvement Program (TIP) is a list of transportation projects and programs to be funded and implemented over a minimum of the next three years and is required to be updated every two years. By law, the TIP must be fiscally constrained such that the amount of programmed expenditures does not exceed the amount of money expected to be available. All transportation projects that use federal funds, in whole or in part must be listed in the TIP. Also projects that touch the state or federal roadways systems require certain types of federal permits or are regionally significant, regardless of their funding source, must be in the TIP.

### LOCAL

#### **Napa County Transportation Planning Agency**

The Napa County Transportation Planning Agency (NCTPA) was formed in 1998 as a Joint Powers Agency, by the cities of American Canyon, Napa, St. Helena, Calistoga, the Town of Yountville and the County. The NCTPA was formed to serve as the countywide transportation planning body for the incorporated and unincorporated areas of Napa County. The agency is charged with coordinating short and long term planning and funding within an Intermodal policy framework in the areas of highways, streets and roads, paratransit, and bicycle improvements.

In July 2000, the NCTPA debuted the VINE, which was formed by combining the V.I.N.E. and the Napa Valley Transit (NVT). Then in 2002, NCTPA began operating community shuttles, including the Calistoga HandyVan, the St. Helena VINE Shuttle and the Yountville Shuttle. As a combined system, the NCTPA provides service to residents throughout the Napa Valley.

#### RTP Preparation and Strategic Transportation Plan

The allocation of State and Federal transportation funds requires the adoption of a long range (20-year) Regional Transportation Plan (RTP). In the Bay Area, this plan is prepared by MTC (Metropolitan Transportation Commission) in cooperation with nine countywide Congestion Management Agencies (CMAs). Locally NCTPA performs the function of the CMA. The RTP forms the basis for NCTPA and MTC decision making related to highways, streets and roads, transit, and bicycle funding. The most recent RTP was prepared in 2001 (amended in 2002) and forecasts long-range planning to improve the surface transportation network to a 2025 horizon.

The current Strategic Transportation Plan (STP) was prepared through a special funding grant provided through MTC and augmented by the NCTPA. The purpose of the STP is to identify objectives for the various transportation corridors in Napa County for short and long term planning and funding within an Intermodal policy framework in the areas of highways, streets and roads, transit, paratransit, and bicycle improvements. An update of the plan is ongoing.

## 4.4 TRANSPORTATION

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### Napa Community-Based Transportation Plan

NCTPA has drafted the Napa Community-Based Transportation Plan that identifies the following solutions to improve transit service:

- Provision of a farm worker shuttle;
- Improve route connectivity through revised schedules for transit service;
- Provision of flexibility-route service for qualifying residents;
- Organization of vanpools to employment destinations;
- Expansion of marketing and advertising of transit services;
- Installation of bus shelters;
- Restripe crosswalks for improved safety accessing transit stops; and
- Improve transit route performance.

### Short Range Transit Plan (2004-2013)

NCTPA has drafted this plan to address the anticipated 20% growth in transit services by the year 2013. The plan includes improvements to regional transit connections, expansion of hours for transit work stops, improvements to local route frequency and capital improvements (e.g., bus stop improvements and construction of park and ride lots).

### **4.4.3 IMPACTS AND MITIGATION MEASURES**

This section compares projected future conditions with the General Plan Update to the current conditions described earlier and to significance standards presented below. Potential impacts to the transportation system are described, along with any mitigation measures that could feasibly reduce the significance of impacts identified.

#### STANDARDS OF SIGNIFICANCE

For purposes of this impact analysis, a transportation impact would be considered significant if it would:

- 1) Cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system, exceeding a level of service standard as follows:
  - i. If roadways operate at LOS D or better with the General Plan Update, the impacts are considered less than significant. Use of LOS E and F as significant is common practice, and reflects industry standards.
  - ii. For roadways that currently operate at LOS D or better, if the General Plan Update results in LOS E or F, the impacts are considered significant even if LOS E or F would occur in the future without the General Plan Update.
  - iii. For roadways that currently operate at LOS E or F, if the General Plan Update would cause an increase in traffic or change in other conditions such that the volume-to-capacity ratio would increase by 5% or more, the impacts are considered significant.<sup>1</sup> Although there is no national standard, using a percent change where the LOS is already unacceptable is a standard industry practice (e.g., Sacramento County Traffic Impact Analysis Guidelines).

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<sup>1</sup> The application of a 5% change in volume-to-capacity ratio is based upon professional judgment and observation. Normally, at LOS E or F, delays are excessive and travel speeds low. Therefore, any changes in traffic volumes are hard to observe. However, changes on the order of 5% are generally noticed by drivers in the stream of traffic.

- 2) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment), as well as potentially adversely affect emergency access needs.
- 3) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks, pedestrian facilities).
- 4) Result in inadequate parking capacity.

Potential conflicts with air traffic are addressed in Section 4.2 (Land Use) and Section 4.9 (Human Health/Risk of Upset), while emergency access is also addressed in Section 4.9 (Human Health/Risk of Upset) and 4.13 (Public Services and Utilities).

### METHODOLOGY

The traffic and circulation analysis is based on field observations; review of existing peak-hour traffic conditions; review of the Napa County Baseline Data Report; application of the Napa/Solano County peak hour travel demand model, and analysis of the Napa County General Plan Update alternatives using accepted traffic analysis techniques such as those presented in the Highway Capacity Manual. The traffic analysis provided in this DEIR is based on technical analysis conducted by Dowling Associates, Inc (see **Appendix C**).

A comprehensive set of roadway segments were selected for analysis so that impacts throughout the transportation system could be evaluated. Roadway segments were selected for analysis (rather than intersections) due to the more general nature of the project being analyzed. Specifically, the General Plan Update is a county-wide project consisting of goals and policies rather than a specific development proposal. Intersection operations were analyzed only to the extent they influence roadway segment performance. Thus, this program EIR assesses the overall impacts of projected growth, and is not intended to evaluate individual sites or infrastructure projects. Without a specific development proposal available at this time (i.e., without an exact mix of uses at precise locations with defined access and egress points), it is infeasible to conduct a comprehensive or reliable intersection level of service analysis.

Also, attention was paid to areas where changes are proposed in one or more alternative. For example, since Alternatives B and C would change the land uses permitted at Napa Pipe and the Pacific Coast/Boca properties, the analysis included the portion of the Napa Valley Highway, as well as portions of Highway 29 and Soscol south and north of the area. Similarly, since Alternative C would expand rural/urban land use designations in the unincorporated community of Angwin, the analysis included Deer Park Road from Sanitarium to Silverado Trail. Infrastructure changes proposed in one or more alternative also influenced the roadway segments selected for analysis.

### Roadway Segments Evaluated

The following process was used to forecast future year roadway segment traffic volumes for the peak hour. The following roadway segments were identified for analysis in this EIR. County staff, the Napa County Transportation Planning Agency staff, and the EIR consultant team finalized the list (which includes portions of roadway segments within cities in the County as well as State Route facilities).

## 4.4 TRANSPORTATION

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Roadway	Segment
1) American Canyon Road	I-80 to Flosden Road
2) Chiles Pope Valley Road	Pope Canyon Road to Lower Chiles Valley Road
3) Deer Park Road	Sanitarium Rd (North) to Silverado Trail
4) Deer Park Road	Silverado Trail to St. Helena Highway (SR 29/128)
5) Flosden Road	American Canyon Road to Napa/Solano County Line
6) Howell Mountain Road	Pope Valley Road to North White Cottage Road
7) Napa Vallejo Hwy	Kaiser Road to Highway 29(SR 29/12)
8) Oak Knoll Avenue	Big Ranch Road to Highway 29
9) Oakville Cross Road	Napa River to Highway 29
10) Old Sonoma Road	Buhman Avenue to Carneros Highway (SR 121/12)
11) Petrified Forest Road	Foothill Boulevard (SR 128) to Franz Valley School Road
12) Pope Canyon Road	Berryessa-Knoxville Road to Chiles-Pope Valley Road
13) Silverado Trail	Oak Knoll Avenue to Hardman Avenue
14) Silverado Trail	Sage Canyon Road (SR 128) to Yountville Cross Road
15) Silverado Trail	Pope Street to Zinfandel Lane
16) Silverado Trail	Bale Lane to Deer Park Road
17) Silverado Trail	Calistoga City Limits to Lincoln Avenue (SR 29)
18) Soscol Avenue	First Street to Silverado Trail
19) Spring Mountain Road	St. Helena City Limit to Langtry Road
20) State Route 12/121	Cuttings Wharf Road to Stanley Road
21) State Route 12	Lynch Road to Kelly Road
22) State Route 121	Wooden Valley Road to Vichy Avenue
23) State Route 121	Circle Oaks Drive to Wooden Valley Road
24) State Route 121	Napa/Sonoma County Line to Old Sonoma Road
25) State Route 128	Napa/Sonoma County Line to Tubbs Lane
26) State Route 128	Tubbs Lane to Petrified Forest Road
27) State Route 128	Petrified Forest Road to Lincoln Avenue (SR 29)
28) State Route 128	Napa River to St Helena Hwy (SR 29)
29) State Route 128	Chiles-Pope Valley Road to Silverado Trail
30) State Route 128	Monticello Road (SR 121) to Berryessa-Knoxville Road
31) State Route 128	Napa/Yolo County Line to State Route 121
32) State Route 29	Napa/Lake County Line to Tubbs Lane
33) State Route 29	Green Island Road to American Canyon Road
34) State Route 29	California Drive to Oak Knoll Avenue
35) State Route 29	Oakville Grade to Madison Street
36) State Route 29	Rutherford Cross Road (SR 128) to Oakville Grade
37) State Route 29	Chaix Lane to Zinfandel Lane
38) State Route 29	Lodi Lane to Deer Park Road
39) State Route 29	Kelly Road to Jamieson Canyon Road (SR 12)
40) State Route 29	Napa-Vallejo Hwy (SR 221) to Kelly Road
41) State Route 29	Napa-Vallejo Hwy (SR 221) to Carneros Hwy (SR 121/12)
42) State Route 29	Imola Avenue (SR 121) to Carneros Hwy (SR 121/12)
43) Tubbs Lane	Highway 29 to Highway 128
44) Wooden Valley Road	Monticello Road (SR 121) to Napa/Solano Co Line
45) Yountville Cross Road	Silverado Trail to Yountville town Limits
46) Zinfandel Lane	Silverado Trail to St Helena Hwy (SR 29&128)

### **Transportation Model Assumptions**

The Napa County Transportation Planning Agency (NCTPA), in collaboration with Solano County's transportation authority, has developed a computer model that can be used to evaluate traffic conditions in a manner that is "regionally compliant" (i.e. the model and its county-wide data/results have been accepted by the Metropolitan Transportation Commission [MTC]). For the current analysis, the most recent version of the Napa/Solano County travel demand model was secured from DKS Associates, the firm that developed the model. Land use assumptions found in the model, for all of the traffic analysis zones (TAZ) that comprise the unincorporated and incorporated portions of the County were extracted and provided to the EIR team for review. These land use assumptions were generally based on ABAG Projections 2003, as described in an earlier section.

The initial land use assumptions in the model were adjusted to reflect updated expectations regarding future employment and housing production based on an economic analysis prepared by Keyser Marston Associates (KMA) and were further adjusted where the General Plan Update would potentially affect the location or amount of growth predicted. Since the precise outcome of the General Plan Update cannot be determined at this point in the planning process, a series of alternatives are evaluated.

Alternative A represents an update of the existing general plan with no major changes in infrastructure or land use patterns. Population and employment assumptions specific to this alternative and to Alternatives B and C were developed by the environmental consultant team for the General Plan Update in consultation with County staff, and Keyser Marston Associates (KMA). Specific adjustments made to geographic areas and TAZs of the County are shown in Table VI-1 of Industrial Land Use Study, Napa County General Plan Update in **Appendix B** and Tables 1 and 2 of the Technical Memorandum for Traffic and Circulation Supporting the Findings and Recommendations in **Appendix C**. It should be noted that no adjustments (with the exception of the City of Napa for Alternatives B and C) were made to the traffic model land use data for the incorporated cities.

The land area within the model is sub-divided into traffic analysis zones. The size of the traffic analysis zones is designed to get larger the further one moves away from Solano and Napa Counties. The smallest traffic analysis zones are found in Napa and Solano counties. The traffic analysis zones in western Sonoma County, northern Contra Costa County and Yolo County were also kept at a finer level. To allow for future development of mode choice models, dense employment areas such as Downtown Oakland, the northeast Quadrant of San Francisco and Downtown Sacramento were also structured with smaller zones. Rural areas tend to be represented with larger traffic analysis zones.

Once the land use assumptions were developed, the following procedures were used to forecast future traffic along roadway segments throughout Napa County and determine the number of trips associated with each alternative, their distribution, and the peak hour levels of service on affected road segments.

### **Description of the Model**

Travel demand models are complex tools used to predict future travel behavior on transportation facilities, and to predict how adequate or congested these facilities will be in the future. To predict the future, a base condition must be established. In this way, the behaviors are "calibrated" to real world conditions, and the resulting traffic flows are "validated" to sample counts. The following characteristics were incorporated into the model.

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- The travel networks (street system) in the Solano/Napa County Travel Demand Model are aligned to match actual roadway configurations.
- The Solano/Napa County Travel Demand Model contains the networks and traffic analysis zones from nine Bay Area counties, the Sacramento Region, San Joaquin County, and Lake County. This blending of models allows for Napa and Solano Counties to be a "focus" of the model, rather than other parts of Northern California. It should be noted that as a model developed for use in Solano and Napa Counties, other county data provide a framework for moving persons, but the forecasts are not designed to replicate travel in places far away from the study area.
- The model was developed to forecast only AM and PM peak hour weekday volumes. The forecasts include roadway segments. No provision for the estimation of intersection turn movements is included in the model.
- To forecast future volumes, the model required existing year AM and PM peak hour directional counts. For many of the locations selected for analysis, the existing counts were extracted from existing sources. The most significant of these sources was the Baseline Data Report (Napa County, BDR 2005). That report included only the category of "peak hour" traffic volumes. Discussions with the authors of the BDR noted that the majority of the existing traffic counts were for the PM peak hour. Given that new traffic counts were not developed at all of the analysis locations and that the PM peak hour tends to contain the highest traffic volumes, only the PM peak hour was evaluated in the EIR.

It is important to understand how the Napa/Solano County Model works to appreciate the results it produces and imitations of those results. The model is comprised of a set of computerized software programs. The battery of programs can be divided into four basic components:

- **Street Network Development:** The existing and future street system is tabulated into the model and provides the basis for the distribution of peak hour trips between traffic analysis zones (TAZs). The street system is coded into the computer using a series of points (nodes) and roadway segments (links). The existing network is coded to reflect existing conditions while the future network reflects future conditions. Future network changes can include new roads, increases in the number of travel lanes, changes in speed or capacity and changes in street classification. The network includes all freeways, highways, major and minor arterials and most collector streets within Napa County. Outside of Napa County a similar network has been provided. In fact, the Napa/Solano County model includes all of the nine Bay Area counties, Lake County, Sacramento County and most of the north central valley jurisdictions. For each roadway segment, travel speeds, number of lanes, capacities and other important transportation information is coded.
- **Trip Generation Module:** Converts land use information into two categories of model inputs: trip productions and trip attractions. As a general rule trip productions are created by housing and trip attractions by all other types of uses such offices, retail facilities and other types of non-residential uses.
- **Trip Distribution:** The model through a very complicated set of procedures determines the number of vehicle trips that go between each of the traffic analysis zones found in the model. The result of this process is a "trip table" that is then used to assign traffic to the street network discussed above.



- **Trip Assignment:** Is the process where by the peak hour trip table is assigned to the street system. The process is very complicated and takes into consideration roadway capacity, travel speeds, and other factors, which effect people's traffic patterns.

### Future Traffic Forecasting Methodology

The future year roadway segment traffic forecasts for the peak hour where determined as follows:

- From an extensive set of resources including raw data from Caltrans, the Background Data Report, County and City traffic counts and the Napa/Solano County Travel Demand Model documentation, existing directional traffic counts were secured for each of the analysis roadway segments.
- At each of our analysis locations, the traffic model volumes from the base year (calibrated model) and the specific future year scenarios were extracted.
- The base year volumes were subtracted from the future year volumes to create a delta, which represented the growth in traffic for the analysis scenario.
- The delta was added to the existing traffic counts (cited in the Baseline Data Report and other sources) to create an adjusted future year traffic projection (peak hour).

Again, it should be noted that the analysis assessed only PM Peak Hour conditions, since this is what the model was designed to assess, and this time of day/week generally represents "worst case." In a very few areas of the County where tourist traffic is high, weekend peak conditions can exceed the PM Peak, and these were also assessed using another methodology. (See discussion under Project Impacts, Travel Demand, below.)<sup>2</sup>

### Scenarios Selected for Evaluation

Alternatives A, B and C were all evaluated using the future 2030 street network assumed in the traffic model without certain roadway improvements identified in the proposed General Plan Update Circulation Element (described further below). Alternatives B and C were also evaluated with the roadway improvements identified in the proposed General Plan Update Circulation Element. This analysis was done in this manner given some current uncertainties of funding of these major improvements. **Table 4.4-9** shows the five land use/roadway scenarios evaluated for this section of the EIR.

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<sup>2</sup> For details on the adjustments made to the model for this EIR, see Dowling Associates 2006 Technical Memorandum.

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**TABLE 4.4-9  
LAND USE/ROADWAY SCENARIOS**

Analysis Scenario	Land Use Alternative	Roadway Network Option
Scenarios 1	A	Future Network Without Proposed General Plan Update Circulation Element Improvements
Scenario 2	B	Future Network Without Proposed General Plan Update Circulation Element Improvements
Scenario 3	C	Future Network Without Proposed General Plan Update Circulation Element Improvements
Scenario 4	B	Future Network With Proposed General Plan Update Circulation Element Improvements
Scenario 5	C	Future Network With Proposed General Plan Update Circulation Element Improvements

Source: Dowling Associates 2006

### General Plan Update Circulation Element Roadway Improvements Included in 2030 Network

The following is a complete list of the improvements included in the additional scenarios for Alternatives B and C. It should be noted that the travel model does not include intersection improvements. Therefore, only changes in roadway classification and numbers of travel lanes (i.e. overall capacity) are included.

- Construction of a northern extension of the Flosden/Newell Road from American Canyon Road to Green Island Road.
- Widening of State Route 12 to four lanes from State Route 29 to Interstate 80 and constructing a new centerline safety barrier.
- Construct an interchange at the Airport Road/State Route 29/State Route 12 intersection.
- Improvements to SR 29 between Green Island Road and SR 221 (widening and Soscol Flyover).

### Other Improvements Included in 2030 Network

It should also be noted that the travel demand model 2030 network includes a number of roadway improvements beyond those listed above. For example, the 2030 model network for SR 29 in St. Helena has lower capacities than they do in the 2003 network (800 vehicles per lane versus 900 vehicles per lane). The model also includes completion of Devlin Road between Soscol Ferry Road and American Canyon. It was not possible, as part of the General Plan Update, to review all of the linkages in the model for these types of changes. However, they explain some of the counterintuitive results produced by the model. Specific corridors such as the Silverado Trail, Flosden Road and other parallel facilities appear to attract traffic under the 2030 configuration due to modest reductions in capacity on the parallel major routes. Additional details regarding the effects of these network assumptions are provided below in the Impacts section under "Unique Model Results".

### **Limitations of the Model Results**

The model is a dynamic process. Therefore, as the street system is changed these changes can result in changes of travel patterns. These shifts affect both the zone-to-zone trip table and the routes motorist use to reach their destination. Hence, unless the traffic patterns (paths between zone-to-zone pairs) are left unchanged, different networks can produce significantly different traffic assignments and results.

When reviewing these results, it is very important to understand that the model does not factor the peak hour traffic to compensate for peak spreading. Peak spreading is the phenomenon where a roadway has a demand for more than one hour of traffic and the model results are adjusted to reflect only one hour of demand. The Napa/Solano County travel demand model does not factor the forecasts. Therefore, a roadway segment may show a demand (assignment forecast), which exceeds the one-hour capacity, when in actuality the segment is likely to function at capacity for a longer period of time than one peak hour.

For those locations where the peak hour volume-to-capacity ratio is higher than 1.00 or 100%, it can be assumed that peak spreading would occur. If the volume-to-capacity ratio is 1.50, one might assume that the LOS F condition would last for about 1 ½ hours. However, this may not be a valid assumption. While the planning models can forecast volume-to-capacity ratios of 1.0 or greater, this condition never occurs in the real world. Once a facility reaches capacity (volume-to capacity ratio = 1.00), no more demand can be served. The flow rate of traffic and the speed of the traffic flow are reduced as you approach LOS E and F. This results in significant congestion and upstream (in the direction that the traffic is coming) backups. Therefore, the next hour of demand is subjected to delays created during the first hour of congestion. In summary, a volume-to-capacity ratio of 1.5 can be said to reflect 1 ½ hours of LOS F, but in fact may reflect more than 1 ½ hours of LOS F conditions.

## **PROJECT IMPACTS AND MITIGATION MEASURES**

### **Travel Demand**

**Impact 4.4.1 Land uses and growth under the proposed General Plan Update could cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system, within the County and adjacent jurisdictions, and could affect emergency access. (Significant and Unavoidable - All Alternatives)**

As previously noted above, traffic impact modeling was conducted for the three alternatives using their unique land use conditions and projected growth by the year 2030. For each alternative, the corresponding changes in housing and employment were coded into the travel demand model. A detailed discussion of the results of detailed below as well as in **Appendix C**.

### Trip Distribution Patterns

Trip distribution patterns created under each alternative are shown in **Table 4.4-10**. The trip patterns are divided into five groupings. These include the following:

- 1) Trips that start and end within the unincorporated portion of Napa County;
- 2) Trips that start and end within the Cities of Napa County;

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- 3) Trips between the county and city portions of Napa County;
- 4) Trips between Napa County locations and the other eight counties of the Bay Area;
- 5) Trips that travel through Napa County using Napa County roadways.

A short segment of I-80 (6,278 feet) is located within Napa County. The external-to-external trips on this segment are not included in the table since they have no impact on the balance of the County's road network and traffic conditions on the freeway are a regional matter, essentially beyond the County's control.

The model results summarized in **Table 4.4-10** suggest that all of the land use alternatives would result in substantially more traffic than existing conditions and would result in somewhat similar amounts of traffic and similar distribution patterns whether or not they incorporate network improvements. For example, Alternative B would generate approximately 8,434 to 8,489 peak hour vehicle trips internal to the County with or without the network improvements included in the Draft Circulation Element. (It should be noted that these values are County-wide and the difference between them is diminutive in that context. Therefore the numbers are basically a comparable number with the improved network.) Both numbers would be substantially higher than the 5,527 estimated under existing conditions.

There would be a substantial increase in both trips between Napa County and other counties, and pass through trips under all alternatives. For example, pass through trips would increase from 5,284 under existing conditions to 14,272 without the improvements identified in the proposed General Plan Update Circulation Element and 15,608 with those improvements.

**TABLE 4.4-10**  
**VEHICLE TRIP PATTERNS UNDER EACH ANALYSIS SCENARIO – PM PEAK HOUR**

Alternatives & Network Scenarios	Trips within County portion of Napa	Trips within Cities in Napa	Trips between Napa County and Napa Cities	Trips between All of Napa and Other 8 Counties	Trips passing through Napa (XX)
Existing Conditions	2,746	15,768	5,527	7,289	5,284
Alternative A (2030) without proposed General Plan Update Circulation Element Improvements	3,940	17,388	7,850	14,493	14,292
Alternative B (2030) without proposed General Plan Update Circulation Element Improvements	4,186	17,176	8,434	14,633	14,257
Alternative C (2030) without proposed General Plan Update Circulation Element Improvements	4,950	17,062	9,210	15,430	14,272
Alternative B (2030) with proposed General Plan Update Circulation Element Improvements	4,187	17,174	8,489	14,525	15,110
Alternative C (2030) with proposed General Plan Update Circulation Element Improvements	4,976	17,042	9,257	15,348	15,608

(XX) = External to external traffic.

Source: Dowling Associates 2006 from Napa-Solano County Travel Demand Model.

An evaluation of the local versus regional trips under existing conditions found that most regional through trips use State Route 12, and a few use State Route 29 from Vallejo and then split east or west on State Route 12. Fewer regional trips go upvalley on State Route 29, and only about 25% of the regional through traffic pass through the City of St. Helena under existing conditions. In contrast, a review of the 2030 model runs shows severe congestion on U.S. 101 in Marin and Sonoma counties. This explains the reason the regional VMT increases considerably for the 2030 alternatives. That is also the reason the select link analysis showed the larger amount of regional through traffic through St. Helena in all of the 2030 scenarios analyzed.

**Table 4.4-10** also demonstrates that the increased housing assumed in Alternative C would result in more trips in most categories than either Alternatives A or B.

Vehicle Miles Traveled

Another variable for comparing each of the alternatives is vehicle miles traveled (VMT) during the PM Peak Hour. VMT is the total number of peak hour trips times the total number of miles traveled between trip origins and destinations. This metric can be useful as a gross comparison of the amount of traffic generated by different alternatives and also takes into account the circuitous routes that drivers can take to avoid congested areas. **Table 4.4-11** illustrates the PM Peak Hour VMT. **Table 4.4-11** also shows the VMT for all trips that start and end within Napa County and all trips, which either start or end within Napa County for trips to locations outside of the County.

**TABLE 4.4-11  
VEHICLE MILES TRAVELED  
LOCAL AND REGIONAL VMT ON NAPA ROADS FOR ALTERNATIVES – PM PEAK HOUR**

Alternative & Network Scenario	Local VMT	Regional VMT	Total VMT
Existing Conditions	166,094	29,931	196,025
Alternative A (2030) without proposed General Plan Update Circulation Element Improvements	319,334	161,487	480,821
Alternative B (2030) without proposed General Plan Update Circulation Element Improvements	323,048	162,315	485,363
Alternative C (2030) without proposed General Plan Update Circulation Element Improvements	342,591	148,710	491,301
Alternative B (2030) with proposed General Plan Update Circulation Element Improvements	323,678	181,466	505,144
Alternative C (2030) with proposed General Plan Update Circulation Element Improvements	342,136	182,925	525,061

*Local VMT = All trips that start and end within the County.*

*Regional VMT = All trips that start or end in County.*

*Source: Dowling Associates 2006 from Napa-Solano County Travel Demand Model*

Due to limitations of the model, the VMT results do not include any external-to-external trips, which travel through the County. As noted in the table above, the amount of regional VMT under future conditions is significantly higher than under existing conditions. In the future conditions, the roadway network throughout the nine Bay Area counties reflect future capacity and planned roadway improvements. Often congestion remains on the facilities outside of Napa County. However, traffic is assigned to the network based upon available capacity. Therefore, due to capacity restraints in the adjacent counties, more regional traffic is being assigned through Napa County in the model, thus increasing the overall number of vehicle miles traveled.

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The VMT under any future scenario will be greater in the future due to the anticipated increase in traffic volumes as the number of people and jobs in the region continues to grow. As illustrated by the model results in **Table 4.4-11**, the PM Peak Hour VMT in 2030 would increase by 128% over existing conditions if no substantive policy changes were made to the update of the existing General Plan (Alternative A). In Alternatives B and C, the increases would be incrementally more, and if network improvements were made, the local PM Peak Hour VMT would be similar. One observation can be made by comparing the Regional VMT under Alternatives B and C. Alternative C, which has more housing units and slightly less jobs than Alternative B, has a better “balance” between housing and employment, and therefore Alternative C has similar vehicle miles going into and out of the County, although it has the greatest overall VMT.

### Travel Times along Selected Routes

Travel time is another way to evaluate and understand changes in traffic under various scenarios, and travel times were evaluated for representative routes. The following routes were selected for analysis because they are representative of the network’s most traveled corridors, and also include routes in all directions. **Table 4.4-12** shows the total travel time in minutes from the start to the end of each of the following routes by direction:

- Imola to I-80 via 29 and Jamieson Canyon
- Imola to I-80 via 29 and Jamieson Canyon
- SR 29 - St. Helena to Salvador
- SR 29 - St. Helena to Salvador
- SR 12/121 – SR 29 to County line
- SR 12/121 – SR 29 to County line
- Mt. St. Helena – SR 29 -Silverado Trail to County line
- Mt. St. Helena – SR 29 -Silverado Trail to County line
- Petrified Forest – Calistoga (128) to County line
- Petrified Forest – Calistoga (128) to County line
- Mt. George – SR 121 and Wooden Valley to County line via Napa City
- Mt. George – SR 121 and Wooden Valley to County line via Napa City

**TABLE 4.4-12**  
**TRAVEL TIMES ALONG SELECTED ROUTES (IN MINUTES)**

Segment	Dir.	Existing Traffic on Existing Roads	Alt A on 2030 Roads w/o General Plan Update Circulation Element Improvements	Alt B on 2030 Roads w/o General Plan Update Circulation Element Improvements	Alt C on 2030 Roads w/o General Plan Update Circulation Element Improvements	Alt B on 2030 Roads with General Plan Update Circulation Element Improvements	Alt C on 2030 Roads with General Plan Update Circulation Element Improvements
Imola to I-80 via 29 and Jamieson Canyon	EB	14.64	41.74	33.07	30.97	17.52	15.07
Imola to I-80 via 29 and Jamieson Canyon	WB	14.91	69.18	75.55	77.19	43.06	48.24
SR 29 - St. Helena to Salvador	SB	18.61	22.83	21.70	23.22	22.92	23.36
SR 29 - St. Helena to Salvador	NB	18.64	31.87	39.34	27.37	50.53	48.54
SR 12/121 – SR 29 to County line	WB	6.73	9.80	17.43	10.25	13.70	13.05
SR 12/121 – SR 29 to County line	EB	6.77	6.95	6.83	6.85	6.83	6.82
Mt. St. Helena – SR 29 - Silverado Trail to County line	NB	9.14	9.13	9.12	9.11	9.11	9.10
Mt. St. Helena – SR 29 - Silverado Trail to County line	SB	9.08	9.08	9.09	9.07	9.09	9.10
Petrified Forest – Calistoga (128) to County line	WB	4.44	4.58	4.54	4.73	4.65	4.66
Petrified Forest – Calistoga (128) to County line	EB	4.46	5.13	6.32	5.50	6.01	7.39
Mt. George – SR 121 and Wooden Valley to County line via Napa City	SB	25.81	41.86	42.22	44.00	30.12	31.41
Mt. George – SR 121 - Napa City to County Line via Wooden Valley	NB	26.86	72.88	80.45	72.23	44.57	68.07

Source: Dowling Associates 2006

As shown in **Table 4.4-12**, travel times would vary depending on the alternative and the location. With network improvements such as widening of Jamieson Canyon, travel times would improve at most, but not at all locations.

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### Peak Hour Level of Service

As explained in the methodology section above, the level of service (LOS) on a given roadway is a convenient measure of its performance, and can be used to characterize impacts under the various alternatives and network scenarios. **Tables 4.4-13** and **4.4-14** show the volume-to-capacity ratios and resultant LOS values for each of the analysis alternatives considered for this EIR. **Table 4.4-13** includes General Plan alternatives A, B and C using the 2030 roadway network excluding proposed General Plan Update Circulation Element roadway improvements. **Table 4.4-14** includes General Plan alternatives B and C using the improved (2030) roadway network (which includes proposed General Plan Update Circulation Element roadway improvements). There are 46 segments shown and for each segment directional values are provided, therefore, 92 LOS results are included. Observations regarding the results are provided following the tables.



TABLE 4.4-13

PEAK HOUR –VOLUME TO CAPACITY (V/C) RATIO AND LEVEL OF SERVICE FOR 2030 WITHOUT PROPOSED GENERAL PLAN UPDATE ROADWAY IMPROVEMENTS

Segment Number	Direction A-B or B-A	Road Name	Segment Descriptions		Peak Hour V/C Ratio				Level Of Service			
					2030 Network w/o improvements				2030 Network w/o improvements			
			Segment Limit North / East	Segment Limit South / West	Existing PM	Alt A PM	Alt B PM	Alt C PM	Existing PM	Alt A PM	Alt B PM	Alt C PM
1	NB/EB	AMERICAN CANYON ROAD	I-80	Flosden Road	0.80	1.48	1.48	1.46	LOS D	LOS F	LOS F	LOS F
2	SB/WB	AMERICAN CANYON ROAD	I-80	Flosden Road	0.80	1.32	1.30	1.39	LOS D	LOS F	LOS F	LOS F
3	NB/EB	CHILES POPE VALLEY RD	Pope Canyon Road	Lower Chiles Valley Road	0.08	0.35	0.32	0.20	LOS A	LOS C	LOS C	LOS C
4	SB/WB	CHILES POPE VALLEY RD	Pope Canyon Road	Lower Chiles Valley Road	0.08	0.09	0.08	0.09	LOS A	LOS B	LOS A	LOS B
5	NB/EB	DEER PARK RD	Sanitarium Rd (North)	Silverado Trail	0.51	0.96	1.01	1.11	LOS C	LOS E	LOS F	LOS F
6	SB/WB	DEER PARK RD	Sanitarium Rd (North)	Silverado Trail	0.42	0.64	0.67	0.59	LOS C	LOS D	LOS D	LOS D
7	NB/EB	DEER PARK ROAD	Silverado Trail	St. Helena Highway (SR 29/128)	0.35	1.03	0.93	0.86	LOS C	LOS F	LOS D	LOS D
8	SB/WB	DEER PARK ROAD	Silverado Trail	St. Helena Highway (SR 29/128)	0.26	0.63	0.63	0.37	LOS C	LOS D	LOS D	LOS C
9	NB/EB	FLOSDEN ROAD	American Canyon Road	Napa/Solano County Line	0.35	0.96	0.93	1.06	LOS C	LOS E	LOS D	LOS F
10	SB/WB	FLOSDEN ROAD	American Canyon Road	Napa/Solano County Line	0.29	0.82	0.78	0.79	LOS C	LOS D	LOS D	LOS D
11	NB/EB	HOWELL MOUNTAIN RD	Pope Valley Rd	N White Cottage Rd	0.07	0.25	0.27	0.28	LOS A	LOS C	LOS C	LOS C
12	SB/WB	HOWELL MOUNTAIN RD	Pope Valley Rd	N White Cottage Rd	0.06	0.25	0.27	0.19	LOS A	LOS C	LOS C	LOS C
13	NB/EB	NAPA VALLEJO HWY	Kaiser Rd	Highway 29(SR 29/12)	0.91	2.34	2.36	2.64	LOS D	LOS F	LOS F	LOS F
14	SB/WB	NAPA VALLEJO HWY	Kaiser Rd	Highway 29(SR 29/12)	0.78	1.25	1.26	1.36	LOS D	LOS F	LOS F	LOS F
15	NB/EB	OAK KNOLL AVE	Big Ranch Rd	Highway 29	0.18	0.18	0.18	0.18	LOS C	LOS C	LOS C	LOS C
16	SB/WB	OAK KNOLL AVE	Big Ranch Rd	Highway 29	0.22	0.22	0.22	0.22	LOS C	LOS C	LOS C	LOS C
17	NB/EB	OAKVILLE CROSS RD	Napa River	Highway 29	0.08	0.13	0.11	0.12	LOS A	LOS C	LOS B	LOS C
18	SB/WB	OAKVILLE CROSS RD	Napa River	Highway 29	0.09	0.23	0.20	0.20	LOS B	LOS C	LOS C	LOS C
19	NB/EB	OLD SONOMA ROAD	Buhman Avenue	Carneros Highway (SR 121/12)	0.22	0.28	0.30	0.31	LOS C	LOS C	LOS C	LOS C
20	SB/WB	OLD SONOMA ROAD	Buhman Avenue	Carneros Highway (SR 121/12)	0.11	0.13	0.14	0.13	LOS B	LOS C	LOS C	LOS C
21	NB/EB	PETRIFIED FOREST ROAD	Foothill Boulevard (SR 128)	Franz Valley School Road	0.68	1.35	1.36	1.40	LOS C	LOS F	LOS F	LOS F
22	SB/WB	PETRIFIED FOREST ROAD	Foothill Boulevard (SR 128)	Franz Valley School Road	0.65	1.34	1.32	1.26	LOS C	LOS F	LOS F	LOS F
23	NB/EB	POPE CANYON RD	Berryessa-Knoxville Rd	Chiles-Pope Valley Rd	0.04	0.18	0.22	0.23	LOS A	LOS C	LOS C	LOS C

## 4.4 TRANSPORTATION

Segment Number	Direction A-B or B-A	Road Name	Segment Descriptions		Peak Hour V/C Ratio				Level Of Service			
					2030 Network w/o improvements				2030 Network w/o improvements			
			Segment Limit North / East	Segment Limit South / West	Existing PM	Alt A PM	Alt B PM	Alt C PM	Existing PM	Alt A PM	Alt B PM	Alt C PM
24	SB/WB	POPE CANYON RD	Berryessa-Knoxville Rd	Chiles-Pope Valley Rd	0.04	0.09	0.10	0.11	LOS A	LOS B	LOS B	LOS B
25	NB/EB	SILVERADO TRL	Oak Knoll Ave	Hardman Ave	0.40	0.96	0.97	1.01	LOS C	LOS E	LOS E	LOS F
26	SB/WB	SILVERADO TRL	Oak Knoll Ave	Hardman Ave	0.61	0.75	0.73	0.86	LOS C	LOS D	LOS C	LOS D
27	NB/EB	SILVERADO TRL	Sage Canyon Rd (SR 128)	Yountville Cross Rd	0.45	0.97	0.94	1.00	LOS C	LOS E	LOS E	LOS F
28	SB/WB	SILVERADO TRL	Sage Canyon Rd (SR 128)	Yountville Cross Rd	0.68	0.77	0.77	0.91	LOS C	LOS D	LOS D	LOS D
29	NB/EB	SILVERADO TRL	Pope St	Zinfandel Ln	0.31	0.86	0.84	0.86	LOS C	LOS D	LOS D	LOS D
30	SB/WB	SILVERADO TRL	Pope St	Zinfandel Ln	0.46	1.02	1.02	1.01	LOS C	LOS F	LOS F	LOS F
31	NB/EB	SILVERADO TRL	Bale Ln	Deer Park Rd	0.19	0.48	0.46	0.55	LOS C	LOS C	LOS C	LOS C
32	SB/WB	SILVERADO TRL	Bale Ln	Deer Park Rd	0.28	0.65	0.67	0.72	LOS C	LOS C	LOS C	LOS C
33	NB/EB	SILVERADO TRL	Calistoga City Limits	Lincoln Ave (SR 29)	0.39	0.95	0.957	1.03	LOS C	LOS E	LOS E	LOS F
34	SB/WB	SILVERADO TRL	Calistoga City Limits	Lincoln Ave (SR 29)	0.25	0.65	0.53	0.58	LOS C	LOS C	LOS C	LOS C
35	NB/EB	SOSCOL AVE	First St	Silverado Trail	0.87	1.03	1.00	0.91	LOS D	LOS F	LOS F	LOS D
36	SB/WB	SOSCOL AVE	First St	Silverado Trail	0.87	0.94	0.98	1.06	LOS D	LOS D	LOS E	LOS F
37	NB/EB	SPRING MOUNTAIN ROAD	St. Helena City Limit	Langtry Road	0.05	0.66	0.69	0.84	LOS A	LOS C	LOS C	LOS D
38	SB/WB	SPRING MOUNTAIN ROAD	St. Helena City Limit	Langtry Road	0.05	0.81	0.82	0.78	LOS A	LOS D	LOS D	LOS D
39	NB/EB	STATE ROUTE 12/121	Cuttings Wharf Road	Stanly Road	0.79	0.98	0.97	1.02	LOS D	LOS E	LOS E	LOS F
40	SB/WB	STATE ROUTE 12/121	Cuttings Wharf Road	Stanly Road	1.47	2.05	2.06	2.06	LOS F	LOS F	LOS F	LOS F
41	NB/EB	STATE ROUTE 12	Lynch Road	Kelly Road	1.17	1.09	1.11	1.08	LOS F	LOS F	LOS F	LOS F
42	SB/WB	STATE ROUTE 12	Lynch Road	Kelly Road	0.75	0.97	0.97	1.03	LOS C	LOS E	LOS E	LOS F
43	NB/EB	STATE ROUTE 121	Wooden Valley Rd	Vichy Ave	0.40	1.12	1.08	1.04	LOS C	LOS F	LOS F	LOS F
44	SB/WB	STATE ROUTE 121	Wooden Valley Rd	Vichy Ave	0.16	0.82	0.82	0.87	LOS C	LOS D	LOS D	LOS D
45	NB/EB	STATE ROUTE 121	Circle Oaks Dr	Wooden Valley Rd	0.10	0.60	0.65	0.57	LOS B	LOS C	LOS C	LOS C
46	SB/WB	STATE ROUTE 121	Circle Oaks Dr	Wooden Valley Rd	0.23	0.45	0.49	0.50	LOS C	LOS C	LOS C	LOS C
47	NB/EB	STATE ROUTE 121	Napa/Sonoma County Line	Old Sonoma Rd	1.13	0.68	0.69	0.72	LOS F	LOS C	LOS C	LOS C
48	SB/WB	STATE ROUTE 121	Napa/Sonoma County Line	Old Sonoma Rd	1.13	0.86	0.86	0.85	LOS F	LOS D	LOS D	LOS D

## 4.4 TRANSPORTATION

Segment Number	Direction A-B or B-A	Road Name	Segment Descriptions		Peak Hour V/C Ratio				Level Of Service			
					2030 Network w/o improvements				2030 Network w/o improvements			
			Segment Limit North / East	Segment Limit South / West	Existing PM	Alt A PM	Alt B PM	Alt C PM	Existing PM	Alt A PM	Alt B PM	Alt C PM
51	NB/EB	STATE ROUTE 128	Napa/Sonoma County Line	Tubbs Lane	0.21	1.01	0.98	0.93	LOS C	LOS F	LOS E	LOS E
52	SB/WB	STATE ROUTE 128	Napa/Sonoma County Line	Tubbs Lane	0.22	1.35	1.35	1.38	LOS C	LOS F	LOS F	LOS F
53	NB/EB	STATE ROUTE 128	Tubbs Ln	Petrified Forest Rd	0.59	0.78	0.79	0.85	LOS C	LOS D	LOS D	LOS D
54	SB/WB	STATE ROUTE 128	Tubbs Ln	Petrified Forest Rd	0.59	0.88	0.86	0.88	LOS C	LOS D	LOS D	LOS D
55	NB/EB	STATE ROUTE 128	Petrified Forest Rd	Lincoln Ave (SR 29)	0.68	1.28	1.29	1.24	LOS C	LOS F	LOS F	LOS F
56	SB/WB	STATE ROUTE 128	Petrified Forest Rd	Lincoln Ave (SR 29)	0.68	1.34	1.36	1.37	LOS C	LOS F	LOS F	LOS F
57	NB/EB	STATE ROUTE 128	Napa River	St Helena Hwy (SR 29)	0.17	0.28	0.31	0.41	LOS C	LOS C	LOS C	LOS C
58	SB/WB	STATE ROUTE 128	Napa River	St Helena Hwy (SR 29)	0.09	0.38	0.41	0.52	LOS B	LOS C	LOS C	LOS C
59	NB/EB	STATE ROUTE 128	Chiles-Pope Valley Road	Silverado Trail	0.12	1.26	1.27	1.22	LOS C	LOS F	LOS F	LOS F
60	SB/WB	STATE ROUTE 128	Chiles-Pope Valley Road	Silverado Trail	0.21	1.14	1.17	1.26	LOS C	LOS F	LOS F	LOS F
61	NB/EB	STATE ROUTE 128	Monticello Road (SR 121)	Berryessa-Knoxville Road	0.09	0.85	0.84	0.86	LOS B	LOS D	LOS D	LOS D
62	SB/WB	STATE ROUTE 128	Monticello Road (SR 121)	Berryessa-Knoxville Road	0.09	0.69	0.69	0.65	LOS B	LOS C	LOS C	LOS C
63	NB/EB	STATE ROUTE 128	Napa/Yolo County Line	State Route 121	0.05	0.91	0.91	0.84	LOS A	LOS D	LOS D	LOS D
64	SB/WB	STATE ROUTE 128	Napa/Yolo County Line	State Route 121	0.05	0.90	0.89	0.95	LOS A	LOS D	LOS D	LOS E
65	NB/EB	STATE ROUTE 29	Napa/Lake County Line	Tubbs Lane	0.26	0.26	0.26	0.26	LOS C	LOS C	LOS C	LOS C
66	SB/WB	STATE ROUTE 29	Napa/Lake County Line	Tubbs Lane	0.32	0.35	0.34	0.33	LOS C	LOS C	LOS C	LOS C
67	NB/EB	STATE ROUTE 29	Green Island Rd	American Canyon Rd	1.05	1.71	1.73	1.75	LOS F	LOS F	LOS F	LOS F
68	SB/WB	STATE ROUTE 29	Green Island Rd	American Canyon Rd	1.05	1.74	1.73	1.74	LOS F	LOS F	LOS F	LOS F
69	NB/EB	STATE ROUTE 29	California Dr	Oak Knoll Ave	0.33	0.60	0.59	0.60	LOS C	LOS C	LOS C	LOS C
70	SB/WB	STATE ROUTE 29	California Dr	Oak Knoll Ave	0.40	0.71	0.72	0.73	LOS C	LOS C	LOS C	LOS C
71	NB/EB	STATE ROUTE 29	Oakville Grade	Madison St	1.13	2.32	2.30	2.30	LOS F	LOS F	LOS F	LOS F
72	SB/WB	STATE ROUTE 29	Oakville Grade	Madison St	1.39	2.82	2.82	2.87	LOS F	LOS F	LOS F	LOS F
73	NB/EB	STATE ROUTE 29	Rutherford Cross Rd (SR 128)	Oakville Grade	0.99	2.07	2.05	1.88	LOS E	LOS F	LOS F	LOS F
74	SB/WB	STATE ROUTE 29	Rutherford Cross Rd (SR 128)	Oakville Grade	1.55	2.53	2.57	2.61	LOS F	LOS F	LOS F	LOS F
75	NB/EB	STATE ROUTE 29	Chaix Ln	Zinfandel Ln	1.09	2.44	2.39	2.38	LOS F	LOS F	LOS F	LOS F

## 4.4 TRANSPORTATION

Segment Number	Direction A-B or B-A	Road Name	Segment Descriptions		Peak Hour V/C Ratio				Level Of Service			
					2030 Network w/o improvements			2030 Network w/o improvements				
			Segment Limit North / East	Segment Limit South / West	Existing PM	Alt A PM	Alt B PM	Alt C PM	Existing PM	Alt A PM	Alt B PM	Alt C PM
76	SB/WB	STATE ROUTE 29	Chaix Ln	Zinfandel Ln	1.34	2.35	2.33	2.57	LOS F	LOS F	LOS F	LOS F
77	NB/EB	STATE ROUTE 29	Lodi Lane	Deer Park Rd	0.76	1.69	1.69	1.41	LOS D	LOS F	LOS F	LOS F
78	SB/WB	STATE ROUTE 29	Lodi Lane	Deer Park Rd	0.92	1.96	1.92	1.91	LOS D	LOS F	LOS F	LOS F
79	NB/EB	STATE ROUTE 29	Kelly Rd	Jamieson Cyn Rd (SR 12)	0.75	1.28	1.32	1.36	LOS C	LOS F	LOS F	LOS F
80	SB/WB	STATE ROUTE 29	Kelly Rd	Jamieson Cyn Rd (SR 12)	0.75	1.15	1.16	1.16	LOS C	LOS F	LOS F	LOS F
81	NB/EB	STATE ROUTE 29	Napa-Vallejo Hwy (SR 221)	Kelly Rd	0.35	0.71	0.73	0.78	LOS C	LOS C	LOS C	LOS D
82	SB/WB	STATE ROUTE 29	Napa-Vallejo Hwy (SR 221)	Kelly Rd	0.35	0.44	0.44	0.44	LOS C	LOS B	LOS B	LOS B
83	NB/EB	STATE ROUTE 29	Napa-Vallejo Hwy (SR 221)	Carneros Hwy(SR 121/12)	0.51	1.06	1.07	1.11	LOS C	LOS F	LOS F	LOS F
84	SB/WB	STATE ROUTE 29	Napa-Vallejo Hwy (SR 221)	Carneros Hwy(SR 121/12)	0.51	0.65	0.65	0.62	LOS C	LOS C	LOS C	LOS C
85	NB/EB	STATE ROUTE 29	Imola Ave (SR 121)	Carneros Hwy(SR 121/12)	0.35	0.62	0.64	0.68	LOS C	LOS C	LOS C	LOS C
86	SB/WB	STATE ROUTE 29	Imola Ave (SR 121)	Carneros Hwy(SR 121/12)	0.35	0.42	0.46	0.46	LOS C	LOS B	LOS B	LOS B
87	NB/EB	TUBBS LN	Highway 29	Highway 128	0.21	0.93	0.92	0.95	LOS C	LOS E	LOS D	LOS E
88	SB/WB	TUBBS LN	Highway 29	Highway 128	0.26	0.84	0.80	0.75	LOS C	LOS D	LOS D	LOS D
89	NB/EB	WOODEN VALLEY RD	Monticello Rd (SR 121)	Napa/Solano Co Line	0.05	0.57	0.57	0.60	LOS A	LOS C	LOS C	LOS C
90	SB/WB	WOODEN VALLEY RD	Monticello Rd (SR 121)	Napa/Solano Co Line	0.19	0.28	0.28	0.28	LOS C	LOS C	LOS C	LOS C
91	NB/EB	YOUNTVILLE CROSS RD	Silverado Trail	Yountville Town Limits	0.17	0.17	0.17	0.17	LOS C	LOS C	LOS C	LOS C
92	SB/WB	YOUNTVILLE CROSS RD	Silverado Trail	Yountville Town Limits	0.31	0.31	0.31	0.31	LOS C	LOS C	LOS C	LOS C
93	NB/EB	ZINFANDEL LN	Silverado Trail	St Helena Hwy (SR 29&128)	0.24	0.35	0.36	0.47	LOS C	LOS C	LOS C	LOS C
94	SB/WB	ZINFANDEL LN	Silverado Trail	St Helena Hwy (SR 29&128)	0.14	0.28	0.28	0.34	LOS C	LOS C	LOS C	LOS C

\*2030 without proposed General Plan Update Roadway Improvements

Source: Dowling Associates 2006

**TABLE 4.4-14**  
**PEAK HOUR –VOLUME TO CAPACITY (V/C) RATIO AND LEVEL OF SERVICE FOR 2030 WITH PROPOSED GENERAL PLAN UPDATE ROADWAY IMPROVEMENTS**

Segment Number	Direction A-B or B-A	Segment Descriptions			Peak Hour V/C Ratio			Level of Service		
		Road Name	Segment Limit North/East	Segment Limit South/West	Existing PM	Improved 2030 Network		Existing PM	Improved 2030 Network*	
						2030B PM	2030C PM		2030B PM	2030C PM
1	NB/EB	AMERICAN CANYON ROAD	I-80	Flosden Road	0.80	1.32	1.32	LOS D	LOS F	LOS F
2	SB/WB	AMERICAN CANYON ROAD	I-80	Flosden Road	0.80	1.20	1.30	LOS D	LOS F	LOS F
3	NB/EB	CHILES POPE VALLEY RD	Pope Canyon Road	Lower Chiles Valley Road	0.08	0.44	0.44	LOS A	LOS C	LOS C
4	SB/WB	CHILES POPE VALLEY RD	Pope Canyon Road	Lower Chiles Valley Road	0.08	0.09	0.09	LOS A	LOS B	LOS B
5	NB/EB	DEER PARK RD	Sanitarium Rd (North)	Silverado Trail	0.51	0.91	1.04	LOS C	LOS D	LOS F
6	SB/WB	DEER PARK RD	Sanitarium Rd (North)	Silverado Trail	0.42	0.68	0.69	LOS C	LOS D	LOS D
7	NB/EB	DEER PARK ROAD	Silverado Trail	St. Helena Highway (SR 29/128)	0.35	0.98	0.99	LOS C	LOS E	LOS E
8	SB/WB	DEER PARK ROAD	Silverado Trail	St. Helena Highway (SR 29/128)	0.26	0.65	0.60	LOS C	LOS D	LOS D
9	NB/EB	FLOSDEN ROAD	American Canyon Road	Napa/Solano County Line	0.35	1.01	1.07	LOS C	LOS F	LOS F
10	SB/WB	FLOSDEN ROAD	American Canyon Road	Napa/Solano County Line	0.29	0.77	0.80	LOS C	LOS D	LOS D
11	NB/EB	HOWELL MOUNTAIN RD	Pope Valley Rd	N White Cottage Rd	0.07	0.22	0.22	LOS A	LOS C	LOS C
12	SB/WB	HOWELL MOUNTAIN RD	Pope Valley Rd	N White Cottage Rd	0.06	0.29	0.32	LOS A	LOS C	LOS C
13	NB/EB	NAPA VALLEJO HWY	Kaiser Rd	Highway 29(SR 29/12)	0.91	2.56	2.84	LOS D	LOS F	LOS F
14	SB/WB	NAPA VALLEJO HWY	Kaiser Rd	Highway 29(SR 29/12)	0.78	1.30	1.33	LOS D	LOS F	LOS F
15	NB/EB	OAK KNOLL AVE	Big Ranch Rd	Highway 29	0.18	0.18	0.18	LOS C	LOS C	LOS C
16	SB/WB	OAK KNOLL AVE	Big Ranch Rd	Highway 29	0.22	0.22	0.22	LOS C	LOS C	LOS C
17	NB/EB	OAKVILLE CROSS RD	Napa River	Highway 29	0.08	0.17	0.19	LOS A	LOS C	LOS C
18	SB/WB	OAKVILLE CROSS RD	Napa River	Highway 29	0.09	0.22	0.21	LOS B	LOS C	LOS C

## 4.4 TRANSPORTATION

Segment Number	Direction A-B or B-A	Segment Descriptions			Peak Hour V/C Ratio			Level of Service		
		Road Name	Segment Limit North/East	Segment Limit South/West	Existing PM	Improved 2030 Network		Existing PM	Improved 2030 Network*	
						2030B PM	2030C PM		2030B PM	2030C PM
19	NB/EB	OLD SONOMA ROAD	Buhman Avenue	Carneros Highway (SR 121/12)	0.22	0.28	0.37	LOS C	LOS C	LOS C
20	SB/WB	OLD SONOMA ROAD	Buhman Avenue	Carneros Highway (SR 121/12)	0.11	0.15	0.15	LOS B	LOS C	LOS C
21	NB/EB	PETRIFIED FOREST ROAD	Foothill Boulevard (SR 128)	Franz Valley School Road	0.68	1.37	1.42	LOS C	LOS F	LOS F
22	SB/WB	PETRIFIED FOREST ROAD	Foothill Boulevard (SR 128)	Franz Valley School Road	0.65	1.33	1.34	LOS C	LOS F	LOS F
23	NB/EB	POPE CANYON RD	Berryessa-Knoxville Rd	Chiles-Pope Valley Rd	0.04	0.17	0.19	LOS A	LOS C	LOS C
24	SB/WB	POPE CANYON RD	Berryessa-Knoxville Rd	Chiles-Pope Valley Rd	0.04	0.10	0.11	LOS A	LOS B	LOS B
25	NB/EB	SILVERADO TRL	Oak Knoll Ave	Hardman Ave	0.40	0.95	0.99	LOS C	LOS E	LOS E
26	SB/WB	SILVERADO TRL	Oak Knoll Ave	Hardman Ave	0.61	0.80	0.95	LOS C	LOS D	LOS E
27	NB/EB	SILVERADO TRL	Sage Canyon Rd (SR 128)	Yountville Cross Rd	0.45	1.02	1.01	LOS C	LOS F	LOS F
28	SB/WB	SILVERADO TRL	Sage Canyon Rd (SR 128)	Yountville Cross Rd	0.68	0.88	1.03	LOS C	LOS D	LOS F
29	NB/EB	SILVERADO TRL	Pope St	Zinfandel Ln	0.31	0.86	0.86	LOS C	LOS D	LOS D
30	SB/WB	SILVERADO TRL	Pope St	Zinfandel Ln	0.46	1.02	1.01	LOS C	LOS F	LOS F
31	NB/EB	SILVERADO TRL	Bale Ln	Deer Park Rd	0.19	0.54	0.53	LOS C	LOS C	LOS C
32	SB/WB	SILVERADO TRL	Bale Ln	Deer Park Rd	0.28	0.66	0.68	LOS C	LOS C	LOS C
33	NB/EB	SILVERADO TRL	Calistoga City Limits	Lincoln Ave (SR 29)	0.39	0.95	0.99	LOS C	LOS E	LOS E
34	SB/WB	SILVERADO TRL	Calistoga City Limits	Lincoln Ave (SR 29)	0.25	0.66	0.60	LOS C	LOS C	LOS C
35	NB/EB	SOSCOL AVE	First St	Silverado Trail	0.87	1.00	0.94	LOS D	LOS F	LOS D
36	SB/WB	SOSCOL AVE	First St	Silverado Trail	0.87	0.98	1.05	LOS D	LOS E	LOS F
37	NB/EB	SPRING MOUNTAIN ROAD	St. Helena City Limit	Langtry Road	0.05	0.72	0.87	LOS A	LOS C	LOS D
38	SB/WB	SPRING MOUNTAIN ROAD	St. Helena City Limit	Langtry Road	0.05	0.85	0.87	LOS A	LOS D	LOS D
39	NB/EB	STATE ROUTE 12/121	Cuttings Wharf Road	Stanly Lane	0.79	1.01	0.96	LOS D	LOS F	LOS E
40	SB/WB	STATE ROUTE 12/121	Cuttings Wharf Road	Stanly Lane	1.47	2.12	2.10	LOS F	LOS F	LOS F

## 4.4 TRANSPORTATION

Segment Number	Direction A-B or B-A	Segment Descriptions			Peak Hour V/C Ratio			Level of Service		
		Road Name	Segment Limit North/East	Segment Limit South/West	Existing PM	Improved 2030 Network		Existing PM	Improved 2030 Network*	
						2030B PM	2030C PM		2030B PM	2030C PM
41	NB/EB	STATE ROUTE 12	Lynch Road	Kelly Road	1.17	0.98	0.88	LOS F	LOS E	LOS E
42	SB/WB	STATE ROUTE 12	Lynch Road	Kelly Road	0.75	0.86	0.87	LOS C	LOS D	LOS D
43	NB/EB	STATE ROUTE 121	Wooden Valley Rd	Vichy Ave	0.40	0.88	0.88	LOS C	LOS D	LOS D
44	SB/WB	STATE ROUTE 121	Wooden Valley Rd	Vichy Ave	0.16	0.41	0.51	LOS C	LOS C	LOS C
45	NB/EB	STATE ROUTE 121	Circle Oaks Dr	Wooden Valley Rd	0.10	0.69	0.67	LOS B	LOS C	LOS C
46	SB/WB	STATE ROUTE 121	Circle Oaks Dr	Wooden Valley Rd	0.23	0.29	0.34	LOS C	LOS C	LOS C
47	NB/EB	STATE ROUTE 121	Napa/Sonoma County Line	Old Sonoma Rd	1.13	0.70	0.72	LOS F	LOS C	LOS C
48	SB/WB	STATE ROUTE 121	Napa/Sonoma County Line	Old Sonoma Rd	1.13	0.89	0.88	LOS F	LOS D	LOS D
51	NB/EB	STATE ROUTE 128	Napa/Sonoma County Line	Tubbs Lane	0.21	1.06	1.03	LOS C	LOS F	LOS F
52	SB/WB	STATE ROUTE 128	Napa/Sonoma County Line	Tubbs Lane	0.22	1.35	1.37	LOS C	LOS F	LOS F
53	NB/EB	STATE ROUTE 128	Tubbs Ln	Petrified Forest Rd	0.59	0.79	0.95	LOS C	LOS D	LOS E
54	SB/WB	STATE ROUTE 128	Tubbs Ln	Petrified Forest Rd	0.59	0.86	0.95	LOS C	LOS D	LOS E
55	NB/EB	STATE ROUTE 128	Petrified Forest Rd	Lincoln Ave (SR 29)	0.68	1.30	1.35	LOS C	LOS F	LOS F
56	SB/WB	STATE ROUTE 128	Petrified Forest Rd	Lincoln Ave (SR 29)	0.68	1.36	1.38	LOS C	LOS F	LOS F
57	NB/EB	STATE ROUTE 128	Napa River	St Helena Hwy (SR 29)	0.17	0.26	0.33	LOS C	LOS C	LOS C
58	SB/WB	STATE ROUTE 128	Napa River	St Helena Hwy (SR 29)	0.09	0.31	0.32	LOS B	LOS C	LOS C
59	NB/EB	STATE ROUTE 128	Chiles-Pope Valley Road	Silverado Trail	0.12	1.11	1.05	LOS C	LOS F	LOS F
60	SB/WB	STATE ROUTE 128	Chiles-Pope Valley Road	Silverado Trail	0.21	0.92	0.98	LOS C	LOS D	LOS E
61	NB/EB	STATE ROUTE 128	Monticello Road (SR 121)	Berryessa-Knoxville Road	0.09	0.79	0.81	LOS B	LOS D	LOS D
62	SB/WB	STATE ROUTE 128	Monticello Road (SR 121)	Berryessa-Knoxville Road	0.09	0.60	0.52	LOS B	LOS C	LOS C
63	NB/EB	STATE ROUTE 128	Napa/Yolo County Line	State Route 121	0.05	0.77	0.69	LOS A	LOS D	LOS C
64	SB/WB	STATE ROUTE 128	Napa/Yolo County Line	State Route 121	0.05	0.63	0.74	LOS A	LOS C	LOS D
65	NB/EB	STATE ROUTE 29	Napa/Lake County Line	Tubbs Lane	0.26	0.26	0.26	LOS C	LOS C	LOS C
66	SB/WB	STATE ROUTE 29	Napa/Lake County Line	Tubbs Lane	0.32	0.33	0.33	LOS C	LOS C	LOS C

## 4.4 TRANSPORTATION

Segment Number	Direction A-B or B-A	Segment Descriptions			Peak Hour V/C Ratio			Level of Service		
		Road Name	Segment Limit North/East	Segment Limit South/West	Existing PM	Improved 2030 Network		Existing PM	Improved 2030 Network*	
						2030B PM	2030C PM		2030B PM	2030C PM
67	NB/EB	STATE ROUTE 29	Green Island Rd	American Canyon Rd	1.05	1.73	1.72	LOS F	LOS F	LOS F
68	SB/WB	STATE ROUTE 29	Green Island Rd	American Canyon Rd	1.05	1.64	1.60	LOS F	LOS F	LOS F
69	NB/EB	STATE ROUTE 29	California Dr	Oak Knoll Ave	0.33	0.65	0.63	LOS C	LOS C	LOS C
70	SB/WB	STATE ROUTE 29	California Dr	Oak Knoll Ave	0.40	0.74	0.75	LOS C	LOS C	LOS C
71	NB/EB	STATE ROUTE 29	Oakville Grade	Madison St	1.13	2.44	2.42	LOS F	LOS F	LOS F
72	SB/WB	STATE ROUTE 29	Oakville Grade	Madison St	1.39	2.88	2.88	LOS F	LOS F	LOS F
73	NB/EB	STATE ROUTE 29	Rutherford Cross Rd (SR 128)	Oakville Grade	0.99	2.12	2.12	LOS E	LOS F	LOS F
74	SB/WB	STATE ROUTE 29	Rutherford Cross Rd (SR 128)	Oakville Grade	1.55	2.55	2.61	LOS F	LOS F	LOS F
75	NB/EB	STATE ROUTE 29	Chaix Ln	Zinfandel Ln	1.09	2.48	2.45	LOS F	LOS F	LOS F
76	SB/WB	STATE ROUTE 29	Chaix Ln	Zinfandel Ln	1.34	2.42	2.62	LOS F	LOS F	LOS F
77	NB/EB	STATE ROUTE 29	Lodi Lane	Deer Park Rd	0.76	1.67	1.62	LOS D	LOS F	LOS F
78	SB/WB	STATE ROUTE 29	Lodi Lane	Deer Park Rd	0.92	1.94	1.98	LOS D	LOS F	LOS F
79	NB/EB	STATE ROUTE 29	Kelly Rd	Jamieson Cyn Rd (SR 12)	0.75	1.84	1.94	LOS C	LOS F	LOS F
80	SB/WB	STATE ROUTE 29	Kelly Rd	Jamieson Cyn Rd (SR 12)	0.75	1.45	1.43	LOS C	LOS E	LOS F
81	NB/EB	STATE ROUTE 29	Napa-Vallejo Hwy (SR 221)	Kelly Rd	0.35	0.94	1.02	LOS C	LOS E	LOS F
82	SB/WB	STATE ROUTE 29	Napa-Vallejo Hwy (SR 221)	Kelly Rd	0.35	0.61	0.60	LOS C	LOS C	LOS C
83	NB/EB	STATE ROUTE 29	Napa-Vallejo Hwy (SR 221)	Carneros Hwy(SR 121/12)	0.51	1.19	1.23	LOS C	LOS F	LOS F
84	SB/WB	STATE ROUTE 29	Napa-Vallejo Hwy (SR 221)	Carneros Hwy(SR 121/12)	0.51	0.77	0.76	LOS C	LOS D	LOS D
85	NB/EB	STATE ROUTE 29	Imola Ave (SR 121)	Carneros Hwy(SR 121/12)	0.35	0.66	0.68	LOS C	LOS C	LOS C
86	SB/WB	STATE ROUTE 29	Imola Ave (SR 121)	Carneros Hwy(SR 121/12)	0.35	0.52	0.55	LOS C	LOS B	LOS B
87	NB/EB	TUBBS LN	Highway 29	Highway 128	0.21	0.92	0.95	LOS C	LOS D	LOS E
88	SB/WB	TUBBS LN	Highway 29	Highway 128	0.26	0.87	0.80	LOS C	LOS D	LOS D
89	NB/EB	WOODEN VALLEY RD	Monticello Rd (SR 121)	Napa/Solano Co Line	0.05	0.50	0.53	LOS A	LOS C	LOS C
90	SB/WB	WOODEN VALLEY RD	Monticello Rd (SR 121)	Napa/Solano Co Line	0.19	0.19	0.19	LOS C	LOS C	LOS C



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Segment Number	Direction A-B or B-A	Segment Descriptions			Peak Hour V/C Ratio			Level of Service		
		Road Name	Segment Limit North/East	Segment Limit South/West	Existing PM	Improved 2030 Network		Existing PM	Improved 2030 Network*	
						2030B PM	2030C PM		2030B PM	2030C PM
91	NB/EB	YOUNTVILLE CROSS RD	Silverado Trail	Yountville Town Limits	0.17	0.24	0.17	LOS C	LOS C	LOS C
92	SB/WB	YOUNTVILLE CROSS RD	Silverado Trail	Yountville Town Limits	0.31	0.31	0.32	LOS C	LOS C	LOS C
93	NB/EB	ZINFANDEL LN	Silverado Trail	St Helena Hwy (SR 29&128)	0.24	0.42	0.48	LOS C	LOS C	LOS C
94	SB/WB	ZINFANDEL LN	Silverado Trail	St Helena Hwy (SR 29&128)	0.14	0.31	0.34	LOS C	LOS C	LOS C

\*2030 with proposed General Plan Update Roadway Improvements  
 Source: Dowling Associates 2006

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### Observations of Results

- As shown in Table 4.4-14, for the 2030 network without proposed General Plan Update Circulation Element Improvements, there are 25 segments that would experience significant congestion impacts under all alternatives when compared to existing conditions, and six that would experience significant congestion impacts under some, but not all, alternatives. In most cases, the impacts would occur whether or not General Plan policies are update. There are also 10 instances where existing road segments operate at LOS E or F under existing conditions and a significant impact would occur in the future due to increases in the Volume to Capacity (v/c) ratio of greater than 5% (e.g., segments of SR 12, 121, and 29). Traffic is projected to improve in the future at only one location: SR 121 at the Sonoma County line due to ongoing improvements in that area.
- The vast majority of the significant impacts would occur regardless of whether or not the General Plan is updated, since they result from projected traffic from the cities in the County as well as regional traffic volume increases.
- Some of the significant congestion impacts that are projected to occur could be resolved by constructing network improvements. For example, on State Route 128 between the Napa/Yolo County Line and State Route 121, the congestion projected under Alternative A and Alternatives B and C without network improvements would be improved under Alternatives B and C if network improvements are implemented. This can be attributed to improved capacity. In other locations, the network improvements would have no impact (e.g. on American Canyon Road between I-80 and Flosden Road), or would indirectly increase congestion (e.g. segments of Silverado Trail).
- In addition to traffic impacts in the unincorporated portion of the County, the projected increases in traffic by 2030 would also be significant on roadways within and adjacent to the cities of American Canyon, St. Helena, Calistoga, Napa and the Town of Yountville as well as Yolo, Solano, Lake and Sonoma counties (under both roadway improvement assumptions).
- For the scenarios where the 2030 network without the General Plan Circulation Element improvements is used, Alternatives A, B and C result in nearly identical impacts. A few locations occur where one alternative is better than the other. These include:
  - Deer Park Road - Sanitarium Road to Silverado Trail where Alternative A is better than B and C. (Alt A, B and C = LOS E, F and F)
  - Deer Park Road – Silverado Trail to St. Helena Highway where Alternative B and C are better than A. (Alt A, B and C = LOS F, D and D)
  - Flosden Road – American Canyon Road to Napa/Solano County Line where Alternative B is better than A and C. (Alt A, B and C = LOS E, D and F)
  - Silverado Trail – Oak Knoll Avenue to Hardman Avenue where Alternatives A and B are better than C. (Alt A, B and C = LOS E, E and F)
  - Silverado Trail - Sage Canyon Road to Yountville Cross Road where Alternatives A and B are better than C. (Alt A, B and C = LOS E, F and F)

- Silverado Trail - Calistoga City Limits to Lincoln Avenue where Alternatives A and B are better than C. (Alt A, B and C = LOS E, E and F)
- State Route 128 – Napa/Yolo County Line to SR 121 where Alternatives A and B are better than C (Alt A, B and C = LOS D, D, and E)
- Tubbs Lane – State Route 29 to State Route 128 where Alternative B is better than A and C. (Alt A, B and C = LOS E, D and E)
- For the scenarios where the improved (2030) network is used, Alternatives B and C results are also nearly identical impacts. A few locations occur where one alternative is better than the other. These include:
  - Deer Park Road - Sanitarium Road to Silverado Trail where Alternative B is better than C. (Alt B and C = LOS D and F)
  - SR 128 - Tubbs Lane to Petrified Forest Road where Alternative B is better than C. (Alt B and C = LOS D and E)
  - Tubbs Lane - State Route 29 to State Route 128 where Alternative B is better than C. (Alt B and C = LOS D and E)
- **SR 29 within American Canyon** - Within American Canyon all of the alternatives result in similar impacts. The traffic along the SR 29 corridor south of SR 12 is composed of local traffic from American Canyon and regional traffic between the Vallejo area to the south including other regional facilities such as SR 37 and Interstate 80 and the northerly portions of Napa County. Further, significant development has occurred along SR 29 within American Canyon that has direct access to this corridor. These conditions reduce the capacity of SR 29 through American Canyon and have resulted in the installation of traffic signals to allow side street traffic to enter and exit the corridor.
- **Traffic originating from Napa Pipe and Boca/Pacific Coast Areas** - Development on the Napa Pipe and Boca sites under Alternatives B and C south of the City of Napa would result in traffic changes that would have the greatest potential to impact the Napa Valley Highway, since this is the regional corridor closest to the sites. As shown in tables 4.4-14 and 4.4-15, traffic congestion along the segment of the Napa Valley Highway between Kaiser Road and SR29 is expected to be significant in the future under all alternatives – even Alternative A, which proposes continued industrial use of the Napa Pipe and Boca/Pacific Coast sites. Significant congestion would also occur whether or not the network improvements analyzed for Alternatives B and C were implemented. Localized impacts on Kaiser Road, Napa Valley Corporate Drive and Syar Industrial Way may also be significant, however a comprehensive assessment of impacts on secondary streets serving these sites cannot be accomplished without further data, specific project proposals, and site-specific analysis.
- **Traffic originating from Angwin** - Increased development in the Angwin area would result in traffic changes that would have the greatest potential to impact Howell Mountain Road, Deer Park Road, and Silverado Trail, since these are the regional corridors closest to the community. As shown in tables 4.4-14 and 4.4-15, traffic congestion along Howell Mountain Road is expected to increase under all alternatives, but would not reach LOS E or F. However Deer Park Road would experience significant congestion (LOS E or F) in one direction under all but one alternative, and Silverado Trail would experience

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congestion along some segments in all alternatives. Local segments of Howell Mountain Road, White Cottage Road and other roadways in the Angwin area may also experience increases in traffic, however a comprehensive assessment of impacts on secondary streets serving the area cannot be accomplished without further data, a specific project proposal, and site-specific analysis.

- Some roadway segments operate at a better LOS under the without the certain proposed General Plan Update Circulation Element roadway improvements than the with the certain proposed General Plan Update Circulation Element roadway improvements. This condition is the result of the dynamic nature of the travel demand project. When State Route 12 (Jamieson Canyon Road) is widened from 2 to 4 lanes, the model assigns more traffic to this corridor. At the same time, parallel corridors such as American Canyon Road, Wooden Valley Road and Sage Canyon Road experience reductions in traffic.

### Weekend Traffic

A comparison of the amount of weekend versus weekday traffic for selected segments shown in **Figure 4.4-2** was evaluated for the PM peak hours. It was found that six out of the 34 segments for which data was provided had higher weekend than weekday traffic. For those segments the 2030 forecasted traffic was factored using the existing ratio of weekend to weekday traffic to estimate the future weekend traffic on these roadways. **Table 4.4-15** show the impacts for the seven segments where either the LOS worsens on the weekend or the change in v/c ratio is greater than five (5) percent.

**TABLE 4.4-15**  
**WEEKEND TRAFFIC IMPACTS – SELECTED ROADWAY SEGMENTS - IMPROVED NETWORK**

Segment	Dir.	2030 Network Without GP Improvements						2030 Network With GP Improvements			
		2030 A Change in LOS	2030 B Change in LOS	2030 C Change in LOS	2030 A Change in V/C	2030 B Change in V/C	2030 C Change in V/C	2030 B Change in LOS	2030 C Change in LOS	2030 B Change in V/C	2030 C Change in V/C
Pope Canyon Road (Berryessa-Knoxville Road to Chiles Pope Valley Road)	EB	C to F	C to F	C to F	1.37	1.74	1.75	C to F	C to F	1.36	1.48
Silverado Trail (Oak Knoll Avenue to Harden Road)	NB	E to F	E to F	F to F	0.10	0.09	0.10	E to F	E to F	0.10	0.09
SR 12 (Lynch Road to Kelly Road)	WB	E to F	E to F	F to F	0.52	0.52	0.55	D to F	D to F	0.47	0.48
SR 29 (Oakville Grade to Madison Street)	NB	F to F	F to F	F to F	0.62	0.63	0.65	F to F	F to F	2.36	2.33
SR 29 (Chaix Lane to Zinfandel Lane)	NB	F to F	F to F	F to F	0.36	0.36	0.36	F to F	F to F	0.37	0.37
SR 29 (Chaix Lane to Zinfandel Lane)	SB	F to F	F to F	F to F	0.26	0.25	0.29	F to F	F to F	0.27	0.29

Source: Dowling Associates 2006

The two locations where the weekday LOS goes from an acceptable to unacceptable level are:

- 1) Pope Canyon Road from Berryessa-Knoxville Road to Chiles Pope Valley Road; and

- 2) SR 12 from Lynch Road to Kelly Road.

For all of the other segments, the LOS is already E or F, but the change in v/c ratio is greater than five (5) percent.

### **Summary of Model Results by Alternative**

#### Alternative A

As shown in **Table 4.4-13**, Alternative A and associated growth of the incorporated cities and regional traffic growth would result in traffic increases in peak hour v/c ratio and LOS, with many road segments going from acceptable LOS (A, B or C) to failing (E or F). In addition to traffic impacts to the unincorporated portion of the County, this increase in traffic would also be significant on roadways within and adjacent to the cities of American Canyon, St. Helena, Calistoga, Napa and the Town of Yountville as well as Yolo, Solano, Lake and Sonoma counties. This alternative would significantly impact 39 roadway segments. Emergency response times and emergency access could also be affected, due to increase in road congestion from raised LOS levels. Pre-existing fire regulations currently address this particular impact as described in Section 4.9 (Human Health/Risk of Upset) and 4.13 (Public Services and Utilities). In addition, State Public Resource Code (PRC) 4290 requires local jurisdictions to implement fire safe standards for roads, bridges, driveways, and entrances that would disallow construction of residential housing on dead-end streets. While mitigation measures are proposed below to reduce this impact, the impact remains **significant and unavoidable**.

#### Alternative B

**Table 4.4-13** and **Table 4.4-14**; identify traffic impacts associated with Alternative B with and without certain proposed General Plan Update Circulation Element roadway improvements. Similar to Alternative A, the anticipated traffic increase would raise LOS levels from acceptable levels to failing (E or F) on county roadways over existing conditions. **Table 4.4-13** and **Table 4.4-14** identify that Alternative B (along with associated growth of the incorporated cities and regional traffic growth) would significantly impact 37 roadway segments without the proposed General Plan Update Circulation Element roadway improvements and 36 roadway segments with these improvements. In addition to traffic impacts to the unincorporated portion of the County, this increase in traffic LOS levels would also be significant on roadways within and adjacent to the cities of American Canyon, St. Helena, Calistoga, Napa and the Town of Yountville as well as Yolo, Solano, Lake and Sonoma counties (under both roadway improvement assumptions). Emergency response times and emergency access could also be affected, due to increase in road congestion from raised LOS levels. Pre-existing fire regulations currently address this particular impact as described in Section 4.9 (Human Health/Risk of Upset) and 4.13 (Public Services and Utilities). In addition, State Public Resource Code (PRC) 4290 requires local jurisdictions to implement fire safe standards for roads, bridges, driveways, and entrances that would disallow construction of residential housing on dead-end streets. While mitigation measures are proposed below to reduce this impact, the impact remains **significant and unavoidable**.

#### Alternative C

**Table 4.4-13** and **Table 4.4-14** identify traffic LOS impacts associated with Alternative C with and without proposed General Plan Update Circulation Element roadway improvement. Similar to Alternative A, the anticipated traffic LOS increases would go from acceptable (A, B, C) to unacceptable (E and F) on County roadways over existing conditions. **Table 4.4-13** and **Table**

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**4.4-14** identifies that Alternative C (along with associated growth of the incorporated cities and regional traffic growth) would significantly impact 39 roadway segments without the proposed General Plan Update Circulation Element roadway improvements and 42 roadway segments with these improvements (which could be the highest of any of the alternatives evaluated). In addition to traffic LOS impacts to the unincorporated portion of the County, this increase in traffic LOS levels would also be significant on roadways within and adjacent to the cities of American Canyon, St. Helena, Calistoga, Napa and the Town of Yountville as well as Yolo, Solano, Lake and Sonoma counties (under both roadway improvement assumptions). Emergency response times and emergency access could also be affected, due to increase in road congestion from raised LOS levels. Pre-existing fire regulations currently address this particular impact as described in Section 4.9 (Human Health/Risk of Upset) and 4.13 (Public Services and Utilities). In addition, State Public Resource Code (PRC) 4290 requires local jurisdictions to implement fire safe standards for roads, bridges, driveways, and entrances that would disallow construction of residential housing on dead-end streets. While mitigation measures are proposed below to reduce this impact, the impact remains **significant and unavoidable**.

### Mitigation Measure

The following mitigation measures would apply to all the alternatives.

- MM 4.4.1a** The County shall provide a policy in the General Plan establishing a standard for adequate level of service on roads and intersections to be applied to all discretionary projects reviewed by the County
- MM 4.4.1b** The County shall include a policy in the General Plan that requires new developments with the potential to significantly affect traffic operations to prepare a traffic analysis prior to discretionary approval of the project.
- MM 4.4.1c** The County shall include a policy in the General Plan that requires new development projects to mitigate their impacts and to pay their fair share of countywide traffic improvements they contribute the need for, including improvements identified in DEIR Table 4.4-20. A countywide traffic impact fee shall be developed in cooperation with NCTPA.
- MM 4.4.1d** The County shall include a policy in the General Plan that requires new residential and commercial development to be concentrated within already developed areas and areas planned for development where sufficient densities can support transit services and development of pedestrian and bicycle facilities.
- MM 4.4.1e** The County shall include a policy to the General Plan that supports programs to reduce single-occupant vehicle use and encourage carpooling, transit use, and alternative modes such as bicycling, walking, and telecommuting. In addition, the County shall seek to maintain total trips in the County using travel modes other than private vehicles (transit, walking, bicycling, public transit, etc.) at 2006 levels.
- MM 4.4.1f** The County shall provide a policy in the General Plan that requires the County of Napa to demonstrate leadership in implementation of programs encouraging the use of alternative modes of transportation by its employees, as well as the use of alternative fuels. Example programs shall include:

- Preferential carpool parking and other ridesharing incentives,
- Flexible working hours,
- A purchasing program that favors hybrid, electric or other non-gasoline vehicles,
- Secure bicycle parking,
- Transit incentives

**MM 4.4.1g** The County shall include a policy in the General Plan that requires all developments along fixed transit routes to provide amenities designed to encourage carpooling, bicycle, and transit use in coordination with NCTPA. Typical features would include bus turnouts/access, bicycle lockers, and carpool/vanpool parking.

**MM 4.4.1h** The County shall include a policy in the General Plan that states where sufficient right of way is available, bicycle lanes shall be added to county roadways when repaving or upgrading of the roadway occurs as feasible.

**MM 4.4.1i** The County shall provide a policy in the General Plan that requires that abandoned rail right-of-way shall be used for alternative uses such as public transit routes, bicycle paths, or pedestrian/hiking routes when feasible.

**MM 4.4.1j** The County shall provide a policy in the General Plan that requires that pedestrian and bicycle access shall be integrated into all parking lots and considered in the evaluation of development proposals and public projects.

**Table 4.4.15** details the necessary roadway improvements that when applied to the 2030 network would mitigate the significant traffic operation impacts at the locations specified to LOS D or better conditions. **Table 4.4-16** details those roadway improvements, which are included in the General Plan Circulation Element.

**TABLE 4.4-15  
ROADWAY IMPROVEMENTS TO IMPROVED 2030 NETWORK (NOT INCLUDED IN GENERAL PLAN)**

<b>Roadway Segment</b>	<b>Improvements</b>
American Canyon Road - I-80 to Flosden Road	Widen this roadway from a two (2) lane rural highway to a four (4)-lane rural highway.
Deer Park Road – Sanitarium Road to Silverado Trail	Widen this roadway from a two (2) lane collector to a four (4) land collector.
Deer Park Road - Silverado Trail to SR 29/128	Widen this roadway from a two (2)-lane collector to a four (4) lane collector.
Flosden Road – American Canyon Road to Solano/Napa County Line	Widen this roadway from a four (4) lane urban arterial to a six (6) lane urban arterial.
Napa Valley Highway - Kaiser Road to SR 29	Widen this roadway from a four (4) lane urban arterial to a six (6) lane urban arterial.
Petrified Forest Road - Foothill Boulevard to Franz Valley School Road	Widen this roadway from a two (2) lane rural arterial to a four (4) lane rural arterial.
Silverado Trail – Oak Knoll Avenue to Hardman Avenue	Widen this roadway from a two (2) lane rural arterial to a four (4) lane rural arterial.

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Roadway Segment	Improvements
Silverado Trail - Sage Canyon Road to Yountville Cross Road	Widen this roadway from a two (2) lane rural arterial to a four (4) lane rural arterial.
Silverado Trail - Pope Street to Zinfandel Lane	Widen this roadway from a two (2) lane rural arterial to a four (4) lane rural arterial.
Silverado Trail - Calistoga City Limits to Lincoln Avenue	Widen this roadway from a two (2) lane rural arterial to a four (4) lane rural arterial.
Soscol Avenue - First Street to Silverado Trail	Widen this roadway from a four (4) lane urban arterial to a six (6) lane urban arterial.
SR 12 - Cuttings Wharf Road to Stanly Lane	Widen this roadway from a two (2) lane Rural Highway to a four (4) lane Rural Highway.
SR 12 - Lynch Road to Kelly Road	Widen this roadway from a four (4) lane Rural Highway to a six (6) lane Rural Highway.
SR 128 - Napa/Sonoma County Line to Tubbs Lane	Widen this roadway from a two (2) lane rural arterial to a four (4) lane rural arterial.
SR 128 – Tubbs Lane to Petrified Forest Road	Widen this roadway from a two (2) lane rural arterial to a four (4) lane rural arterial.
SR 128 - Petrified Forest Road to Lincoln Avenue	Widen this roadway from a two (2) lane rural arterial to a four (4) lane rural arterial.
SR 128 - Chiles-Pope Valley Road to Silverado Trail	Widen this roadway from a two (2) lane rural arterial to a four (4) lane rural arterial.
SR 29 - Green Island Road to American Canyon Road	Widen this roadway from a four (4) lane rural highway to a six (6) lane rural highway.
SR 29 - Oakville Grade to Madison Street	Widen this roadway from a two (2) lane rural highway to a four (4) lane rural highway.
SR 29 - Rutherford Cross Road to Oakville Grade	Widen this roadway from a four (4) lane rural arterial to a six (6) lane rural arterial.
SR 29 - Chaix Lane to Zinfandel Lane	Widen this roadway from a four (4) lane rural arterial to a six (6) lane rural arterial.
SR 29 - Lodi Lane to Deer Creek Road	Widen this roadway from a four (4) lane rural arterial to a six (6) lane rural arterial.
SR 29 – Kelly Road to Jamieson Canyon Road (SR 12)	Widen this roadway from a four (4) lane rural arterial to a six (6) lane rural arterial.
SR 29 – Napa Valley Highway to Kelly Road	Widen this roadway from a four (4) lane rural highway to a six (6) lane rural highway.
SR 29 - Napa Valley Highway to Carneros Highway	Widen this roadway from a six (6) lane freeway to an eight (8) lane freeway.
Tubbs Lane - SR 29 to SR 128	Widen this roadway from a two (2) lane rural highway to a four (4) lane rural highway.

Source: Dowling Associates 2006



**TABLE 4.4-16**  
**SPECIFIC ROADWAY IMPROVEMENTS UNDER THE PROPOSED GENERAL PLAN UPDATE CIRCULATION ELEMENT**

<b>Roadway Segment</b>	<b>Summary of Improvements</b>
SR 29 - Green Island Road to American Canyon Road	Widen this roadway.
SR 29 – SR 221 and Green Island Road	Widen this roadway
SR 12 – Airport Boulevard and SR 29	Construct an interchange
SR 12 (Jamieson Canyon)	Widen this roadway by adding one travel lane in each direction, provision of a safety median barrier and room for a class II bike lane
SR 221/SR 12/SR 29	Improve intersection
Flosden Road/Newell Road – American Canyon Road to Green Island Road	Extend this roadway
Devlin Road – Soscol Ferry Road and American Canyon	Complete this road
SR 29 and Rutherford Crossroad Intersection and Yountville Crossroad and Silverado Trail Intersection	Intersection improvements to improve safety and traffic flow.
SR 29 – between Oakville and St. Helena	Safety and flow improvements.
Countywide	Install safety improvements on rural roads and highways throughout County.

*Source: Dowling Associates 2006, Napa County*

While the above roadway improvements in **Table 4.4-15** would reduce the peak hour and daily levels of service to acceptable levels, roadway improvements beyond those listed in Policy CIR-2.3 are not considered feasible given the environmental effects associated with the roadway widening and that these improvements would be inconsistent with the vision set forth in the General Plan Update. The following statement from the Summary and Vision section of the proposed General Plan Update summarizes the County's provisions: "This General Plan will preserve and improve the quality of life and the rural character of the County by proactively addressing land use, traffic, and safety concerns in addition to sustaining the agricultural industry." Widening of these roadways would result in more severe environmental impacts (beyond what is addressed in this DEIR) associated with visual resources, water quality, noise, air quality, and growth inducement.

Additionally, roadway widening of several roadway segments such as SR 128 and Tubbs Lane would be infeasible due to lack of right-of-way and proximity to existing commercial and/or residential developments. For roads where right-of-way exists for widening, impacts would include increased traffic noise to existing commercial and/or residential uses.

Although mitigation measures **MM 4.4.1a** through **MM 4.4.1j** may reduce this impact, some VMT and LOS increases would still remain, therefore, this is considered a **significant** and **unavoidable** impact for Alternatives A, B and C.

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### Roadway Safety and Emergency Access

**Impact 4.4.2** Implementation of the proposed General Plan Update could substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses as well as potentially adversely affect emergency access needs. (Significant and Mitigable - All Alternatives)

Implementation of any of the proposed General Plan Update Alternatives (A, B, and C) would increase the amount of vehicle traffic and the number of potential safety and emergency access conflicts. The reader is referred to Section 4.9 (Human Health/Risk of Upset) and Section 4.13 (Public Services and Utilities) for additional discussion on emergency access.

Impacts specific to each alternative is addressed below.

#### Alternative A

Alternative A would result in the least vehicle miles traveled (see **Table 4.4-11**) of the three alternatives, but total VMT would be substantially greater than under existing conditions. This alternative would not include the proposed General Plan Update roadway improvements. New development would be required to meet current County roadway standards; however, increased traffic could constrain emergency access. This impact is **significant and mitigable** with the implementation of the mitigation measures identified below.

#### Alternative B

Alternative B would contribute to a substantial increase in County-wide vehicle miles traveled (see **Table 4.4-11**) when compared to existing conditions. However, this alternative does include the proposed General Plan Update roadway improvements that would provide additional access routes in the southern portion of the County. The contribution of traffic could result in emergency access constraints. This impact is **significant and mitigable** with the implementation of the mitigation measures identified below.

#### Alternative C

Alternative C would result in similar impacts as Alternative B. This impact is **significant and mitigable** with the implementation of the mitigation measures identified below.

#### Mitigation Measure

Implementation of mitigation measures MM 4.9.4 and MM 4.13.1.1a and b as well as compliance with County Code (Chapters 15.32 and 18.84) and Public Resources Code Sections 4290 and 4291 (e.g., provisions associated with development standards and restrictions regarding structure design, fuel modification zone design, adequacy of emergency access) would reduce this impact to **less than significant** for all alternatives.

### Conflicts with Existing Alternative Transportation Policies and Programs

**Impact 4.4.3** Implementation of the proposed General Plan Update could conflict with NCTPA planning efforts associated with transit provision and pedestrian and bicycle facilities. (Significant and Mitigable - All Alternatives)

The primary mode of travel during the commute periods is with single-occupant vehicles. A reasonable number of trips are also made in carpools. However, public transit amounts to only 1-2% of all travel. This is significantly lower than the Bay Area public transit usage of 13%. Bicycling and walking also present only a small portion of the travel during the commute. It is therefore unlikely that a doubling of travel via these alternative modes would improve peak hour levels of service sufficiently to result in a major improvement in roadway LOS.

As noted above, NCTPA has drafted plans to improve transit service, which is anticipated to grow by 20% by the year 2013. Subsequent development under the proposed General Plan Update could increase the demand for transit services that require the need for the construction of facilities to accommodate transit. NCTPA also has an adopted bicycle plan.

Impacts specific to each alternative is addressed below.

### Alternative A

As described under Section 3.0 (Project Description), this alternative would result in the least amount of development. Most of the development under Alternative A would occur in existing rural and urban areas. However, this increase in population would place further demand on transit services and the need for additional transit facilities as well as pedestrian and bicycle facilities. This impact would be considered **significant and mitigable** with the implementation of the mitigation measures identified below.

### Alternative B

Alternative B would include development and densification of residential uses at Pacific Coast/Boca, Napa Pipe and County-owned sites in the City of Napa, in addition to land use patterns similar to Alternative A. This increase of development and density would place further demand on transit services and the need for additional transit facilities as well as pedestrian and bicycle facilities. This impact would be considered **significant and mitigable** with the implementation of the mitigation measures identified below.

### Alternative C

Alternative C would result in similar impacts as Alternative B. This impact is **significant and mitigable** with the implementation of the mitigation measures identified below.

### Mitigation Measures

Implementation of the mitigation measures MM 4.4.1d through g identified in Impact 4.4.1 above would support the provision of transit, pedestrian, and bicycle facilities as well as incentives for transit use consistent with NCTPA policies. Thus, implementation of these mitigation measures would reduce this impact to **less than significant** for all alternatives.

### **Create Additional Demand for Parking Facilities**

**Impact 4.4.4** Land uses and development under the proposed General Plan Update could create additional demand for parking facilities and therefore inadequate parking capacity if these facilities are not constructed. (Significant and Mitigable - All Alternatives)

## 4.4 TRANSPORTATION

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In addition to increases in traffic volumes along existing roadways, subsequent development under the proposed General Plan Update would result in the need for new and/or modified parking facilities. In addition, construction of roadway improvements could result in the loss of parking at existing developed sites.

Impacts specific to each alternative is addressed below.

### Alternative A

As identified in Section 3.0 (Project Description), this alternative would retain the existing land use designations under the current General Plan Land Use Map as well as the policy guidance set forth under the existing General Plan. Between the year 2005 and 2030, it is projected that there would be an additional 2,235 dwelling units and 16,014,000 square feet of non-residential uses in the unincorporated portion of the County. This increase in development would require new parking facilities and inadequate capacity if these facilities are not constructed. This impact is **significant and mitigable** with the implementation of the mitigation measures identified below.

### Alternative B

This alternative would generally retain the existing land use designations under the current General Plan Land Use Map similar to Alternative A. However, this alternative would provide for additional growth within currently General Plan designated areas for rural and urban development (such as within the unincorporated community of Angwin) as well as re-use of the Pacific Coast/Boca site and Napa Pipe site and County-owned sites within the City of Napa. Between the year 2005 and 2030, it is projected that there would be an additional 3,885 dwelling units and 14,636,000 square feet of non-residential uses in the unincorporated portion of the County. This alternative also includes roadway improvements (proposed under the General Plan Update Circulation Element) that may result in the loss of existing parking at sites in the southern portion of the County. The resulting parking impact is **significant and mitigable** with the implementation of the mitigation measures identified below.

### Alternative C

Alternative C would result in similar impacts as Alternative B. This impact is **significant and mitigable** with the implementation of the mitigation measures identified below.

### Mitigation Measure

The following mitigation measures would apply to all three alternatives.

**MM 4.4.4a** The County shall provide a policy in the General Plan Update that new development projects shall provide adequate parking to meet their anticipated parking demand and shall not provide excess parking that could stimulate unnecessary vehicle trips or commercial activity exceeding the site's capacity. The required parking supply shall be based on compliance with County Zoning Code parking requirements.

**MM 4.4.4b** The County shall provide a policy in the General Plan Update that requires roadway improvement projects expected to result in the loss of parking for an existing use to provide replacement parking if required meeting County Zoning Code parking requirements.

Implementation of the above mitigation measures would ensure that additional parking demand from new development would be met. Thus, implementation of these mitigation measures would reduce this impact to **less than significant** for all alternatives.

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### REFERENCES

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