

4.11 CUMULATIVE EFFECTS

4.11.1 INTRODUCTION

This cumulative effects analysis broadens the scope of analysis to include effects beyond those solely attributable to the direct effects of the alternatives. Cumulative effects are defined as the effects:

(O)n the environment which result from the incremental effect of the action when added to other past, present, and reasonably foreseeable future actions regardless what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time (40 CFR Sec. 1508.7).

The analysis in this section expands the geographic and temporal borders to include the effects on specific resources, ecosystems, and human communities that occur incrementally in conjunction with other actions, projects and trends. The purpose of cumulative effects analysis, as stated by the Council on Environmental Quality (CEQ) “is to ensure that federal decisions consider the full range of consequences” (CEQ, 1997:3).

The cumulative analysis begins with: 1) identifying past, present, and future actions and projects in association with the status of the resources, ecosystems, and human communities that may be affected, and 2) defining geographic borders and time frame of the analysis.

The status of affected resources is based upon the information provided in **Section 3.0** of this document, from specific resource studies that have been undertaken for the alternatives, and from additional review and analysis.

The geographic boundaries of the cumulative effects zone have been determined by the nature of the resources affected and the distance that effects may travel. As an example, increased sedimentation of waterways that result from a project is limited to the watershed in which they occur. As a result, it is only necessary to examine incremental effects within that watershed. Air quality emissions from a project, however, travel over far greater distances and therefore necessitate analysis on a county, air basin, or regional level. For this analysis, the geographic boundary of the cumulative effects zone is generally that of Madera County, although with many resources (water, biological etc.) smaller boundaries are used.

The time frame of the cumulative effects analysis extends to 2030. For many resources, information is unavailable to extend meaningful analysis to 2030; however, attempts have been made to provide all relevant information. The year 2030 was selected as the year for cumulative analysis based on a request from Caltrans to analyze cumulative effects to this time period. AES consulted with Madera

County, the City of Madera, and the City of Chowchilla during preparation of the traffic study for this EIS specifically with respect to the scope of cumulative analysis.

As recommended by CEQ's *Considering Cumulative Effects*, not all potential cumulative effects issues have been included in this EIS; only those that are considered to be relevant or consequential have been discussed in depth (CEQ, 1997:12).

PROJECTED GROWTH

The Madera County Transportation Commission (MCTC) traffic model projects growth according to traffic analysis zones (TAZs). **Figure 4.11-1** presents the TAZs in close proximity to both the Madera site and the North Fork site. **Table 4.11-1** presents the corresponding growth projections for the associated TAZs for each general employment sector for the Madera site while **Table 4.11-2** presents this information for the North Fork site. The MCTC traffic model projects to the year 2025. Therefore, the projected number of employees is calculated based on square footage and the acreage of a parcel of land through 2025 to maximize accuracy. Based on that calculation, the projected number of employees is presented in **Tables 4.11-1** and **4.11-2**. Traffic volume projections were further calculated to 2030 based on the 2025 model volumes and expected trends at the request of Caltrans.

LIST OF OTHER ACTIONS AND PROJECTS

Transportation Projects

Several major projects are planned in the future that may affect traffic conditions near the Madera site. These projects would be completed regardless of the EIS alternatives.

Caltrans has two freeway improvement projects in process on SR-99 in the vicinity of the Madera site. These improvements are as follows:

- Avenue 16 to Avenue 17 – four-lane freeway expanded to six-lane freeway and relocation of Avenue 16 Interchange
- Avenue 17 to Avenue 21 - four-lane freeway expanded to six-lane freeway

Madera County has one roadway improvement project along Airport Drive between Avenue 17 and Yeager Road that would re-stripe the roadway to form four lanes.

Figure 4.11-1 Project Area Traffic Analysis Zones

TABLE 4.11-1
PROJECTED GROWTH SURROUNDING THE MADERA SITE

TAZ	Year	Type of Employees								Total
		SFDU	MFDU	RETEMP	OFFEMP	MANEMP	OTHEMP	GOVEMP	EDUEMP	
20550	2000	10	0	0	0	0	0	0	0	10
	2025	10	0	0	0	0	0	0	0	10
	Diff + (-)	0	0	0	0	0	0	0	0	0
2300	2000	55	52	20	0	40	110	0	0	277
	2025	55	52	20	0	40	200	0	0	367
	Diff + (-)	0	0	0	0	0	90	0	0	90
2301	2000	18	0	0	0	110	15	0	0	143
	2025	18	0	0	0	110	75	0	0	203
	Diff + (-)	0	0	0	0	0	60	0	0	60
2303	2000	161	0	0	0	0	5	0	0	166
	2025	161	0	0	0	0	55	0	0	216
	Diff + (-)	0	0	0	0	0	50	0	0	50
2306	2000	23	0	5	0	0	10	0	0	38
	2025	23	0	5	0	0	60	0	0	88
	Diff + (-)	0	0	0	0	0	50	0	0	50
2307	2000	19	0	5	0	0	65	0	0	89
	2025	19	0	55	0	0	110	0	0	184
	Diff + (-)	0	0	50	0	0	45	0	0	95
2308	2000	2	0	0	0	95	180	0	0	277
	2025	2	0	0	0	95	280	0	0	377
	Diff + (-)	0	0	0	0	0	100	0	0	100
2309	2000	861	0	10	15	0	40	0	0	926
	2025	861	0	10	10	200	100	0	0	1,181
	Diff + (-)	0	0	0	(5)	200	60	0	0	255
2311	2000	1	4	0	0	0	20	0	0	25
	2025	1	4	0	0	0	70	0	0	75
	Diff + (-)	0	0	0	0	0	50	0	0	50
2312	2000	0	0	5	25	110	80	10	0	230
	2025	0	0	105	270	610	180	160	0	1,325
	Diff + (-)	0	0	100	245	500	100	150	0	1,095
2313	2000	26	48	175	25	450	450	0	0	1,174
	2025	26	698	390	270	650	650	200	0	2,884
	Diff + (-)	0	650	215	245	200	200	200	0	1,710
2316	2000	269	4	25	15	0	190	0	0	503
	2025	269	4	75	10	0	290	0	0	648
	Diff + (-)	0	0	50	(5)	0	100	0	0	145
2317	2000	33	0	0	0	0	0	0	0	33
	2025	280	0	85	500	0	46	0	0	911
	Diff + (-)	247	0	85	500	0	46	0	0	878
2403	2000	0	0	0	0	0	0	0	0	0
	2025	0	0	1198	0	0	358	0	0	1,556
	Diff + (-)	0	0	1198	0	0	358	0	0	1556

NOTES: The Madera Site is located in TAZ 2307.

SFDU = single-family dwelling unit, MFDU = multi-family dwelling unit, RETEMP = retail employee, OFFEMP = office employee, MANEMP = manufacturing employee, OTHEMP = other employee, GOVEMP = government employee, and EDUEMP = education employee.

Employee counts are based on the square footage or acreage.

Diff + (-) = the difference in employee numbers between the year 2000 and 2025

SOURCE: TPG Consulting, 2006; AES, 2006.

TABLE 4.11-2
PROJECTED GROWTH SURROUNDING THE NORTH FORK SITE

TAZ	Year	Type of Employee								Total
		SFDU	MFDU	RETEMP	OFFEMP	MANEMP	OTHEMP	GOVEMP	EDUEMP	
2069	2000	270	6	5	0	10	0	120	0	411
	2025	435	80	5	0	20	20	125	0	685
	Diff + (-)	165	74	0	0	10	20	5	0	274
2070	2000	153	0	5	0	0	0	0	0	158
	2025	175	0	0	0	0	0	0	0	175
	Diff + (-)	22	0	(5)	0	0	0	0	0	17
2072	2000	128	22	5	0	0	0	0	0	155
	2025	130	25	5	0	0	20	0	0	180
	Diff + (-)	2	3	0	0	0	20	0	0	25
2129	2000	270	4	5	10	25	40	0	0	354
	2025	450	125	10	10	75	100	50	0	820
	Diff + (-)	180	121	5	0	50	60	50	0	466
2310	2000	21	0	0	0	0	0	15	0	36
	2025	50	0	0	0	0	25	100	0	175
	Diff + (-)	29	0	0	0	0	25	85	0	139
2131	2000	52	2	5	0	20	20	5	0	104
	2025	701	0	20	5	60	150	100	0	1,036
	Diff + (-)	649	(2)	15	5	40	130	95	0	932
2132	2000	168	0	0	0	10	35	0	0	213
	2025	300	0	10	0	10	100	0	0	420
	Diff + (-)	132	0	10	0	0	65	0	0	207
2133	2000	78	50	25	10	15	10	0	100	288
	2025	120	30	45	10	15	50	0	120	390
	Diff + (-)	42	(20)	20	0	0	40	0	20	80
2134	2000	28	0	10	15	0	10	20	0	83
	2025	40	5	50	15	0	50	0	0	165
	Diff + (-)	12	5	40	0	0	40	(20)	0	77
2135	2000	5	0	20	10	0	0	75	20	130
	2025	10	0	40	10	0	0	4	20	84
	Diff + (-)	5	0	20	0	0	0	(71)	0	(46)

NOTES: The North Fork site is located in TAZ 2132.

SFDU = single-family dwelling unit, MFDU = multi-family dwelling unit, RETEMP = retail employee, OFFEMP = office employee, MANEMP = manufacturing employee, OTHEMP = other employee, GOVEMP = government employee, and EDUEMP = education employee.

Employee counts are based on the square footage or acreage.

Diff + (-) = the difference in employee numbers between the year 2000 and 2025.

SOURCE: TPG Consulting, 2006; AES, 2006.

Development Projects

The proposed developments discussed below are included in projected growth discussed in the following section and in the projected cumulative traffic volumes.

Commercial Development

Bratton Project. As shown in **Figure 4.11-2**, the development proposes a 3000 sf fast-food restaurant with drive-thru, an 8000 sf high-turnover sit-down restaurant, 24,755 sf of specialty retail, two 86-room hotels, and a 12-fueling position service station with a convenience market and car wash. The development is planned to be located south of Avenue 17 and to the west of Airport Drive.

Madera Outlet Mall. An application for a general plan and specific plan amendment and rezoning has been filed for an approximately 100-acre site located north of Avenue 17 to the west of Airport Drive and Golden State Boulevard. The application filed with the City of Madera requests to revise the current general plan designation from Industrial to Commercial, expand the boundaries of Specific Plan Number 1 to include the property and to prezone the property for commercial use for the purpose of annexing and developing the property. According to the application, the property has the potential for approximately 500,000 to 600,000 square feet of commercial space. As shown in **Figure 4.11-3**, the property is currently planned for a 750,000 sf factory outlet center.

48-Acre Commercial Development. An application for a specific plan amendment and rezoning has been filed for an approximately 48-acre site located south of Avenue 17 to the east of SR-99 (**Figure 4.11-4**). The application filed with the City of Madera requests to expand the boundaries of Specific Plan Number 1 to include the property and to prezone the property for commercial development for the purpose of annexing and development. The property is located outside the City limits but has a general plan designation for service commercial uses. While no preliminary plans have been submitted or potential uses or clients identified, indications show that approximately 250,000 square feet of retail floor area can possibly be developed. The project is located in a key location at the extension point of public utilities with access and circulation to the Madera site from the south to Avenue 17.

Madera Town Center. As shown in **Figure 4.11-5**, the development entitled Madera Town Center is identified as a retail 'power center' with approximately 746,000 square feet of retail floor area planned for development. An application for a general plan, specific plan and rezoning has been filed for an approximately 100-acre site located north of Avenue 17 to the east of SR-99. According to the application filed with the City of Madera, the boundaries of the general and Specific Plan Number 1 would be expanded to include the project for commercial use development and annexation.

Insert Figure 4.11-2 Bratton Project Site Plan

Insert Figure 4.11-3 Madera Outlet Mall Site Plan

Insert Figure 4.11-4 48-acre Commercial Development

Insert Figure 4.11-5 Madera Town Center Site Plan

Feland/Zilkin Project. The development proposes a 14-building, 221,000 sf multi-tenant shopping center located south of Avenue 16 and Home Depot Center, between North Schnoor and SR-99. The assumed completion date is 2008.

Madera Fairgrounds Commercial Project. The development proposes a 307,279 sf multi-tenant shopping center located south of West Cleveland Avenue, between Schnoor Avenue and SR-99 (**Figure 4.11-6**). The planned completion date is 2008.

Residential and Industrial Development

An extensive list of planned residential development projects was obtained from the City of Madera (City of Madera, 2005a). These developments are included in the projected cumulative traffic volumes. **Figure 4.11-7** presents the location of the planned residential developments in the general vicinity of the Madera site. **Table 4.11-3** presents the planned residential developments in the City of Madera and their current development status. Many of these projects are under construction. The difference between the number of approved units and the number of building permits obtained is that amount of additional growth that may occur in future phases of development (Gonzales, 2005).

Table 4.11-4 presents the future planned residential developments in unincorporated Madera County and their current development status. These developments are currently undergoing review by the County. After receiving final map approval, the developer is able to obtain any permits necessary to construct the subdivision.

In addition to residential projects waiting for approval, a number of projects have been approved but are awaiting the issuance of permits. The two largest provide for over 32,000 housing units to be developed. One of the projects would provide 28,000 housing units; it will be constructed south of Highway 41. Highway 41 provides access from Fresno to Yosemite National Park; it also provides access to the Chukchansi Casino and the North Fork site. Another 4,500-housing-unit project is proposed in the area of the State Center Community College development located just south of the City of Madera along Highway 99.

Madera Municipal Airport

Sam Scheider, Airport Operations Manager, was contacted in January 2006, regarding potential future growth projections for the Airport. AES was informed that their main emphasis is on improving their instrument approach capabilities and possibly an extension of the runway by 500 feet but there are no general growth plans projected.

Figure 4.11-6 Madera Fairgrounds Commercial Project Location

Figure 4.11-7 Planned Development in Madera County and the City of Madera

TABLE 4.11-3
PLANNED RESIDENTIAL DEVELOPMENT WITHIN THE CITY OF MADERA

Name of Development	Approved	Recorded	Map Id No.	No. of Units	No. of Building Permits
Westgate Northwest	9/13/1988	12/21/1990	1	268	255
Town & Country Estates	4/11/1989	11/24/1992	3	139	129
Mansionette Estates	11/14/1989	9/13/1994	7	163	159
Crystal Heights	4/10/1990	6/5/1991	8	98	60
Northwest Estates	5/8/1990	6/21/1995	9	12	11
Woodlands	5/8/1990	9/23/1993	10	62	41
Country Meadows	9/11/1990	9/15/1996	14	155	See Montecito Park
Sunset Southwest	6/3/1991	11/16/1995	16	139	138
Venturi	1/12/1993	11/9/1995	17	107	See Pebble Beach
Forest Hills (Basila)	3/9/1993	9/23/1993	18	81	71
Home Ranch	10/11/1994	1/11/2002	19	349	167
French Cove	7/12/1995	6/19/1996	20	89	74
Sierra Vista Homes II	8/8/1995	5/10/1999	33	15	6
Las Palmas Estates	4/17/1996	12/6/1996	27	69	68
Montecito Park	9/11/1990	9/15/1996	14	155	114
Capistrano X	2/8/2000	8/9/2000	29	162	147
La Jolla Estates South	3/10/1998	6/12/2001	11	65	64
Pebble Beach Estates	5/11/1999	4/14/2000	30	310	306
River Pointe Terrace	11/9/1999	9/10/2001	36	46	25
Lincoln Place	5/9/2000	2/15/2001	37	54	54
Riverview Apt. (Vista del Sol)	7/11/2000	NA	39	192	88
Villa Piamonte	7/11/2000	4/13/2001	40	31	20
Cottonwood Estates I	5/8/2001	4/24/2003	42	41	41
Clinton Elm III (RDA)	9/25/2001	4/23/2003	43	11	8
Capistrano XI	12/8/2001	6/7/2002	44	45	38
Vineyards West	1/8/2002	7/23/2003	45	200	75
Vista del Sierra (RDA)	3/12/2002	12/18/2003	46	48	48
Cottonwood Estates II	9/10/2002	3/4/2004	47	163	55
Capistrano XII	11/12/2002	4/30/2003	48	86	86
Cordova Estates	12/10/2002	4/3/2003	49	194	189
Capistrano XIII	2/11/2003	12/18/2003	50	42	42
Chateau at the	5/13/2003	12/1/2003	51	163	105

Name of Development	Approved	Recorded	Map Id No.	No. of Units	No. of Building Permits
Vineyards					
Highlands at Valencia	6/10/2003	10/13/2004	52	343	159
Yosemite Estates	7/9/2003	6/17/2004	23	30	24
Oakwood Estates	9/23/2003	11/18/2005	55	23	23
Kennedy Estates	10/14/2003	4/21/2005	54	203	0
Pebble Beach X	10/14/2003	8/14/2003	56	22	7
Santa Barbara Estates	1/13/2004	5/27/2005	57	90	0
South Star Estates	3/9/2004	11/18/2004	58	61	14
Sierra View Estates No. 2 II	3/9/2004	11/19/2004	59	31	31
La Jolla Estates North	3/9/2004	11/19/2004	60	93	73
Foxglove Estates	5/11/2004	1/13/2005	61	10	10
Capistrano Homes XIV	5/11/2004	4/21/2005	63	60	60
Tuscan Village	6/8/2004	2/18/2005	68	25	7
Puerto Vallarta	7/13/2004	2/23/2005	70	70	17
<i>Total</i>				<i>4,815</i>	<i>3,109</i>

SOURCE: City of Madera, 2005a; AES, 2005.

TABLE 4.11-4
PLANNED RESIDENTIAL DEVELOPMENT WITHIN MADERA COUNTY

Name of Development	Location	Acres	No. of Lots	Status
Self-Help Subdivision	Madera	38.05	125	Preliminary map
Reed Subdivision	Raymond	133.96	37	Preliminary map
Lindsey-McKeever Subdivision	Coarsegold	59.37	11	Preliminary map
Lowry Subdivision	Madera	7.45	2	Final map
Helen Smith Subdivision	Coarsegold	42.16	4	Tentative map
Hard Times Ranch Subdivision	North Fork	68.89	10	Final map
North Fork Mill	North Fork	129.56	15	Preliminary map (on hold)
Sierra Meadows Estates	Ahwahnee	442	315	Preliminary map
Riverbend Ranch Subdivision	Madera	370	333	Preliminary map (on hold)
McCaffrey Subdivision	Madera	80	455	Preliminary map (on hold)
River Ranch Estates	Madera	803	122	Tentative map
Quail Meadows Villages	Oakhurst	71.56	110	Final map
<i>Total</i>		<i>2,246</i>	<i>1,539</i>	

SOURCE: Madera County, 2005; AES, 2005.

4.11.2 ALTERNATIVE A – PROPOSED PROJECT

LAND RESOURCES

The geographic area for the analysis of cumulative impacts to land resources is the San Joaquin Valley. The principal effects to Land Resources associated with countywide development would be localized topographical changes and soil attrition, both of which are evaluated in terms of runoff characteristics, sedimentation and flow under permitting authorities and criteria relevant to *Water Resources*, below. Local permitting requirements for construction would address regional stormwater, geotechnical, seismic and mining hazards; therefore, no cumulative impacts related to Land Resources would occur as a result of Alternative A.

WATER RESOURCES

The geographic boundary of the cumulative water resources analysis is defined as the San Joaquin Valley. This boundary has been selected because the Madera site is within the San Joaquin River watershed.

Cumulative effects related to development of an on-site water supply source could occur in the project area as the result of reduced water supply from the underlying groundwater aquifer when combined with regional groundwater level declines from cumulative development's use of the aquifer.

Development of on-site groundwater resources could affect groundwater levels in the project vicinity. Adjacent groundwater wells may also be dewatered (interference drawdown) and the saturated interval (well depth minus depth to water) may be significantly lowered due to interference drawdowns. As described in **Section 4.3**, all of the known off-site wells located within a two-mile radius of the Madera site would experience minor drawdown effects from proposed pumping on the site. These effects would be exacerbated in the future, from cumulative development in the area. However, Alternative A would not result in a significant incremental contribution to the regional groundwater overdraft situation because the Tribe has signed a Memorandum of Understanding (MOU) with the Madera Irrigation District (MID) under which the Tribe agrees to purchase 450 acre feet per year of water from MID to be utilized for off-site aquifer recharge. Alternative A is expected to utilize 448 acre-feet of water per year if reclaimed water is not available and 305 acre-feet of water per year if reclaimed water is available. Thus, under either option Alternative A's regional impact would be fully mitigated. The Tribe further agrees in the MID MOU to monitor water usage and, should water usage rise above 450 acre feet in a particular year, to ensure that the aquifer is recharged by the amount of water utilized above 450 acre feet. Thus, significant cumulative impacts to groundwater would not occur.

Cumulative effects to water quality may take place as the result of future developments in combination with Alternative A. Examples of effects include:

- increased sedimentation,
- increased pollution, and
- increased stormwater flows.

Stormwater discharges from residential and industrial areas are of concern in managing surface water quality. Pollutants that accumulate in the dry summer months such as oil and grease, asbestos, pesticides, and herbicides, create water quality problems due to their presence in high concentrations during the first major autumn storm event (RWQCB, 1998).

Affected water bodies within the project area include Dry Creek and Fresno River, located just west and south of the Madera site. Schmidt Creek and Dry Creek originate in the northeastern area of Madera County and eventually flow into the Fresno River and thence the San Joaquin River. These two creeks act as flood control channels as well as regional drainage channels. These waters are currently not listed as impaired on the 303(d) list.

A watershed's runoff characteristics are altered when impervious surfaces replace natural vegetation or agricultural lands. Runoff charges may increase stream volumes, increase stream velocities, increase peak discharges, shorten the time to peak flows, and lessen groundwater contributions to stream base-flows during non-precipitation periods. Urban areas also have significant sources of non-point source pollution that can affect regional water quality when examining the entire watershed contribution to receiving waters. Transportation developments and other planned developments within the San Joaquin Valley would gradually increase urban areas, thereby increasing the potential for increased runoff volumes, velocities, and pollution. Impacts to water resources from planned cumulative developments could also increase runoff volumes and pollution when cumulatively evaluated along with Alternative A.

Alternative A could contribute to changes in runoff characteristics (volume, velocity, and hydrograph) and water quality located near the Madera site as a result of project development. However, the Tribe has made appropriate design allowances which would reduce the project's contribution to cumulative effects to a less than significant level. These include:

- Surface water detention basins that will limit post-construction runoff peak volumes to pre-construction levels.
- Sediment/grease traps to control and reduce the Total Suspended Solids (TSS) and other potentially environmentally polluting minerals or materials such as oils and greases, nutrients and metals by approximately 80%.
- Where feasible, all areas outside of buildings and roads will be kept as permeable surfaces, either as vegetation or high infiltration cover such as mulch, or gravel, or turf block.
- Rooftops will drain to either embedded cisterns or vegetated driplines to maximize infiltration prior to concentrating runoff.

- Pedestrian pathways will use a permeable surface where possible, such as crushed aggregate or stone with sufficient permeable joints.
- In accordance with the requirements of the NPDES Phase II General Permit for Storm Water Discharges from Construction Activities, the Tribe will prepare a Stormwater Pollution Prevention Plan (SWPPP) to control discharge of pollutants in stormwater.

Other development projects will incorporate similar or identical measures as required by local regulations and Federal law. With the incorporation of these features, Alternative A would not result in a significant contribution to a cumulative water quality effect.

AIR QUALITY

Ozone and PM Emissions

Ozone and PM are pollutants that affect the region as a whole, in particular Madera County (see **Section 3.4.1**). Therefore, cumulative air quality effects are assessed by comparing the incremental emissions associated with Alternative A to Countywide emissions forecasted by the California Air Resources Board (CARB) for long-term cumulative conditions. Since the farthest planning horizon for countywide emission forecasts is the year 2020, in order to have consistency, estimated emissions for the project and its alternatives were reevaluated to the year 2020 and are presented in **Table 4.11-7**.

Madera County's and the San Joaquin Valley's emissions trends from 1975 to 2020 are presented in **Table 4.11-5** (CARB, 2005). For NO_x, Madera County trends mirror those of the San Joaquin Valley Air Basin (SJVAB). There was a slight increase in emissions from 1975 to 1980 and then a reasonable decline in emissions every year since. For ROG, the similarities are not so predominant. Whereas both Madera and the SJVAB show a slight decline from 1995 to 2005 and starting to level off in future years, their past is not so similar. Madera County saw a significant decrease in ROG emissions between 1975 and 1980 and the SJVAB saw an increase in the same time period and whereas the SJVAB saw a significant decrease between 1980 and 1995, Madera County saw almost no change.

In general, ozone precursor emissions from mobile sources tend to decrease over time because emissions standards have become stricter and engine technologies have improved. For instance, the percentage of hybrid vehicles on the road is increasing every year, and this trend is expected to continue. As newer vehicles, which meet stricter emission standards and are built with the latest technology, are introduced into the vehicle fleet, they replace older, higher polluting vehicles. The decrease in emissions per vehicle was substantial enough to compensate for increases in the amount of travel. The San Joaquin Valley has a substantial motor vehicle population, and the implementation of stricter motor vehicle emissions controls has resulted in large emissions reductions for ozone precursors.

Although the long-term ambient trends indicate improving ozone levels, since 1994 the peak ozone indicators have been somewhat elevated. It is not yet clear whether these data represent a change in the overall trend. Stationary source emissions of ROG in the San Joaquin Valley have declined over the last 20 years due to new controls for oilfield emissions and new rules for control of ROG from various industrial coatings and solvent operations.

Direct emissions of PM₁₀ increased in the SJVAB and Madera County between 1975 and 2000 and are projected to continue increasing through 2020. This increase is due to the growth in emissions from area-wide sources, primarily paved road dust (CARB, 2005).

TABLE 4.11-5
REGIONAL EMISSIONS TRENDS

	1975	1980	1985	1990	1995	2000	2005	2010	2015	2020
NO_x										
Madera County	30.0	35.7	32.8	35.8	32.5	30.6	29.8	26.8	24.1	21.8
San Joaquin Valley Air Basin	688	853	853	822	688	582	489	410	345	305
ROG										
Madera County	80.7	64.2	62.3	62.4	60.0	57.8	56.6	55.5	54.9	54.9
San Joaquin Valley Air Basin	1,411	1,470	1,295	876	720	683	621	599	593	595
PM₁₀										
Madera County	17.6	19.4	17.7	18.8	18.9	19.4	20.8	22.0	23.0	24.3
San Joaquin Valley Air Basin	387	377	378	386	350	398	394	410	420	432

NOTES: Amounts of emissions are in tons per day.

SOURCE: California Air Resources Board, 2005; AES, 2005.

The 2020 emissions estimates include the effects of projected growth in the County associated with an increase in population and construction of new residential/commercial/industrial developments. Thus, the 2020 regional inventory emission levels include the effects from the related projects discussed above in **Section 4.11.2**.

For 2020, in addition to Countywide emissions, incremental Alternative A generated emissions are also compared with the San Joaquin Valley Air Pollution Control District (SJVAPCD) significance thresholds discussed in **Section 4.4.2**. The SJVAPCD's thresholds are:

- 10 tons per year (tpy) of ROG, and
- 10 tpy of NO_x emissions.

As noted in **Section 4.4.2**, these thresholds are meant to assure compliance with the State and Federal Clean Air Acts. The SJVAPCD is projecting improved ozone levels for the San Joaquin Valley in 2020 and beyond (SJVAPCD, 2004). A plan to attain the Federal 8-hour ozone standard has not yet been adopted. Thus, it is assumed that the San Joaquin Valley Air Basin will remain in non-

attainment for the Federal 8-hour ozone standard and that similar emissions thresholds for ROG and NO_x will continue to indicate a significant air quality effect in 2020 and 2030. Similar PM₁₀ emissions thresholds are also assumed to continue to apply in 2020 and 2030, given that PM₁₀ emissions are projected to increase through the cumulative time period.

In **Table 4.11-6** long-term 2020 operational emissions associated with Alternative A (and the other alternatives for ease of comparison) are compared to countywide emissions forecasts for 2020. In 2020, unmitigated operation of Alternative A is estimated to result in:

- 11.85 tons per year (tpy) of ROG,
- 16.72 tpy of NO_x, and
- 42.95 tpy of PM₁₀ emissions.

As shown in **Table 4.11-6**, Alternative A generated only 0.210% of the Countywide total NO_x in 2020 and only generated 0.059% of ROG. The PM₁₀ contribution for Alternative A is a little more with 0.48% in 2020. The incremental effect of Alternative A is a relatively minor portion of the Countywide total for one project for ROG, NO_x, and PM₁₀. Alternative A, along with other cumulative development would exacerbate the regional trend towards higher PM₁₀ emissions but to a less than significant level, because of dust control measures being successfully implemented throughout the air basin.

TABLE 4.11-6
LONG TERM EMISSIONS IN TONS PER DAY AS A PERCENT OF COUNTY 2020 TOTAL

Project Alternative	Reactive Organic Gases (ROG)			Nitrogen Oxide Gases (NO _x)			Inhalable Particulates (PM ₁₀)		
	Project-Related Emissions	Madera County Total	% of Total	Project-Related Emissions	Madera County Total	% of Total	Project-Related Emissions	Madera County Total	% of Total
Alternative A	0.032	54.9	0.059	0.046	21.8	0.210	0.118	24.3	0.48
Alternative B	0.022	54.9	0.040	0.031	21.8	0.143	0.082	24.3	0.34
Alternative C	0.031	54.9	0.057	0.044	21.8	0.204	0.118	24.3	0.48
Alternative D	0.004	54.9	0.007	0.005	21.8	0.024	0.014	24.3	0.06

NOTES: Amounts of emissions are in tons per day.

SOURCE: California Air Resources Board, 2005; AES, 2006.

Table 4.11-7 presents a comparison of unmitigated operational and area source emissions for Alternative A (and the other alternatives for ease of comparison) to SJVAPCD emissions criteria. In 2020, both ROG and NO_x unmitigated emissions generated by Alternative A would still exceed the 10-tpy significance thresholds.

Reductions in ROG and NO_x would occur through the implementation of mitigation measures detailed in **Section 5.2.3** and the effects of mitigations as calculated by the URBEMIS model appear in **Table 4.11-8**. However, the full extent of the emission reductions that could be attributed to these mitigations cannot be fully represented by the URBEMIS program. The current, District

recommended, version of URBEMIS (version 8.70) allows the user to take advantage of environmental factors such as local serving retail and pedestrian and transit amenities in the area, but it does not allow the user to apply mitigations that are changes in the project that can mitigate the pollution. Therefore, mitigations described in **Section 5.2.3** could potentially reduce the cumulative effects of Alternative A to less than significant level, but without empirical data to generate a repeatable reduction rate, it is conservatively assumed that substantial reductions would not occur and that a significant cumulative effect on air quality remains after mitigation.

TABLE 4.11-7
2020 UNMITIGATED EMISSIONS IN TONS PER YEAR
COMPARED TO SJVAPCD THRESHOLDS

PROJECT ALTERNATIVE	EMISSIONS IN TONS PER YEAR	
	ROG	NO _x
ALTERNATIVE A	11.85	16.72
<i>Significant Cumulative Effect?</i>	Yes	Yes
ALTERNATIVE B	8.06	11.40
<i>Significant Cumulative Effect?</i>	No	Yes
ALTERNATIVE C	11.35	16.20
<i>Significant Cumulative Effect?</i>	Yes	Yes
ALTERNATIVE D	1.32	1.91
<i>Significant Cumulative Effect?</i>	No	No

NOTE: Emissions shown are for mobile sources and area sources. Significance threshold amount is 10 tpy for ROG and NO_x.

SOURCE: AES, 2006.

TABLE 4.11-8
2020 MITIGATED EMISSIONS IN TONS PER YEAR
COMPARED TO SJVAPCD THRESHOLDS

PROJECT ALTERNATIVE	EMISSIONS IN TONS PER YEAR	
	ROG	NO _x
ALTERNATIVE A	11.26	15.68
<i>Significant Cumulative Effect?</i>	Yes	Yes
ALTERNATIVE B	7.81	10.96
<i>Significant Cumulative Effect?</i>	No	Yes
ALTERNATIVE C	11.03	15.66
<i>Significant Cumulative Effect?</i>	Yes	Yes

NOTE: Emissions shown are for mobile sources and area sources. Significance threshold amount is 10 tpy for ROG and NO_x.

SOURCE: AES, 2006.

Carbon Monoxide Concentrations

As described in the traffic study of the project alternatives, traffic operations at signalized study intersections would be LOS D or better with Alternative A under 2030 long-term future cumulative background conditions and traffic mitigation measures. Based on criteria presented in the University of California Davis Institute of Transportation Studies document *Transportation Project-Level Carbon Monoxide Protocol* (Garza, et al., 1997), intersections operating at LOS D or better typically do not result in CO concentrations that exceed State or Federal standards. Therefore, Alternative A with traffic mitigation measures, in combination with increased traffic from cumulative development would have a less-than-significant impact on CO air quality.

Odor Effects

Several commercial centers are planned in the area around the intersection of Avenue 17 and State Route 99. The SJVAPCD's list of common types of facilities that have been known to produce odors in the SJV occur mostly in manufacturing/industrial zones and no industrial areas are projected for the area, therefore Alternative A (which would not result in significant odors after the implementation of mitigation measures contained in **Section 5.2.3**), in combination with cumulative development, would have a less than significant odor effect.

Toxic Air Contaminants

Alternative A and other projects, when considered cumulatively, could result in potentially significant impacts from toxic air contaminants. Several commercial centers are planned in the area around the intersection of Avenue 17 and State Route 99. Potential toxic air contaminant sources such as gasoline dispensing facilities and dry cleaners could be located in these commercial areas. The SJVAPCD permit process, City permitting processes, and future environmental review processes (applied to future development) will combine to ensure that Alternative A, in combination with cumulative development, would have a less than significant effect from toxic air contaminants.

Climate Change

In the absence of specific guidance, the following method for assessing the impact levels of project GHG emission was developed in accordance with one of several approaches presented by the Association of Environmental Professionals (AEP) in its white paper entitled, *Alternative Approaches to Analyzing Greenhouse Gas Emissions and Global Climate Change in CEQA Documents* (AEP, 2007). The AEP approach used herein involves a combination of quantitative and qualitative analysis focusing on project effects on state efforts to reduce cumulative statewide GHG emissions in the future.

As noted in **Section 3.4**, global warming is a global issue that is not being caused by any one development project, but by global increases in atmospheric GHG concentrations. Thus, solutions to the global warming problem have tended to be on the global or regional level. California's global warming policies and legislation (most notably Executive Order S-3-05 and AB 32) are intended to be regional solutions to ensure that statewide emissions are reduced substantially in the future (to

levels much lower than existing levels), doing California's part to ensure that future global emissions are reduced and ultimately to reverse the global warming trend. California's policies are also expected to encourage other countries and regions to adopt similar policies, which would further the global effort to reduce emissions (CAT, 2006).

California's Air Resources Board (CARB) and Climate Action Team (CAT) have recently identified approximately 126 strategies and measures that will be utilized for the state to meet its emissions reduction targets in 2010, 2020, and 2050 (see **Appendix W**). Most of these measures focus on statewide action meant to curb emissions by changes in statewide planning or policies rather than changes to individual development projects. However, some of the measures may be directly applicable to specific industries or individual commercial developments. Should a development alternative comply with all directly applicable measures, the alternative will be supporting the state's efforts to significantly reduce its cumulative contribution to global climate change (to levels recommended by the IPCC) and the associated impacts. Thus, for the purposes of this analysis, cumulative contributions associated with a development alternative are considered less than significant if the project complies with all strategies and measures currently identified by CARB or CAT to comply with Executive Order S-3-05 or AB 32 that directly apply to an individual commercial project similar to that proposed by the development alternative.

Carbon Dioxide Equivalent

Carbon dioxide equivalent (CO₂e) is a method by which GHGs values other than CO₂ are converted to a CO₂-like emissions value based on a heat-capturing ratio. As shown in **Table 4.11-9**, CO₂ is used as the base and is given a value of one. CH₄ has the ability to capture 21 times more heat than CO₂; therefore, CH₄ is given a CO₂e value of 21. Emissions are multiplied by the CO₂e value to achieve one GHG emission value. By providing a common measurement, CO₂e provides a means for presenting the relative overall effectiveness of emission reduction measures for various GHGs in reducing project contributions to global climate change.

TABLE 4.11-9
GREENHOUSE GAS CO₂ EQUIVALENT

Gas	CO₂e Value
CO ₂	1
CH ₄	21
N ₂ O	310
HFCs/PFCs	6,500
SF ₆	23,900

Source: BAAQMD, 2006.

Strategies and Emission Estimates

As shown in **Table 4.11-10**, the EPA and CARB approved URBEMIS 2007 emissions modeling software estimates that Alternative A would result in the emission of approximately 2,731 tons per

year of CO₂ during construction, which is expected to last 12 months. During operation, Alternative A would result in the emission of 27,116 tpy of CO₂. Based on emission factors from the Climate Change Action Registry, Alternative A would result in the emission of CH₄ and N₂O equivalent to 1,034 tpy of CO₂e. Indirect emissions of CO₂, CH₄, and N₂O would be the equivalent 6 tpy of CO₂e. Total annual emissions during operation would be equivalent to 28,156 tpy of CO₂e. Annual Alternative A GHG emissions would be approximately 0.0047 percent of California's predicted contribution to global GHG emissions in 2020 (see **Table 3.4-5**). Alternative A contributions to the annual global GHG emissions in 2020 would be approximately 0.000032 percent. While Alternative A's contributions to statewide and global emissions are miniscule, a potentially significant contribution to cumulative global emissions cannot be ruled out solely on the basis of a small percentage contribution. This is due to the potentially serious impacts of climate change and the potential for even relatively minimal concentrations to lead to a "tipping point" beyond which impacts will be irreversible.

TABLE 4.11-10
ESTIMATED ALTERNATIVE A OPERATIONAL GHG EMISSIONS

CO₂ Emissions¹					
Mobile Sources		Area Sources		Total CO₂e	
tons per year		tons per year		tons per year	
26,373		594		27,116	
CH₄ and N₂O Emission from Mobile Sources²					
Emission Factor (CO₂/CH₄/N₂O)	Miles Traveled	CH₄	N₂O	Total CO₂e	
g/mile	miles/day	tons per year		tons per year	
552.08/0.05/0.05	155,358	66	969	1,034	
Indirect GHG emissions²					
Emission Factor (Kg of CO₂/CH₄/N₂O)	Estimated kW-h Usage³	CO₂	CH₄	N₂O	Indirect CO₂e
lb/MW-h	MW-h/year	tons per year			
804.54/0.006/0.0037	33	6	0	0	6
Total Operation CO₂e tons per year					28,156

¹ Estimated from EPA and CARB approved URBEMIS air quality program (**Appendix S**)

² Emission factors from Climate Change Action Registry

³ Estimated using 4,500 kilowatts-hours/month of power used.

Source: URBEMIS, 2007; Climate Change Action Registry, 2007.

As discussed above and in **Section 3.4**, California's strategies and measures would result in a reduction of statewide emissions, including emissions resulting from Alternative A, to levels below current background levels. Of the approximately 126 strategies and measures that would ensure a statewide reduction in GHG emissions, only three were determined to apply to Alternative A (see

Table 4.11-11). The other strategies do not apply because they either apply to state entities, such as CARB and are planning-level measures, or they apply to particular industries, such as the auto repair industry. As shown in **Table 4.11-11**, Alternative A would not be in compliance with one of the three applicable state climate change strategies, resulting in a potentially significant cumulative impact based on the methodology explained above. Measures in **Section 5.2.3** would ensure compliance with all applicable strategies, resulting in a less than significant cumulative impact.

TABLE 4.11-11
COMPLIANCE WITH STATE EMISSIONS REDUCTION STRATEGIES

CAT Strategies and Early Action Measures	Alternative A Compliance
Diesel Anti-Idling: In July 2004, the CARB adopted a measure to limit diesel-fueled commercial motor vehicle idling.	Development would be located on trust lands and thus not subject to CARB restrictions on on-site diesel-fueled commercial vehicle idling.
Achieve 50 percent statewide Recycling Goal: Achieving the State's 50 percent waste diversion mandate as established by the Integrated Waste Management Act of 1989, (AB 939, Sher, Chapter 1095, Statutes of 1989), will reduce climate change emissions associated with energy intensive material extraction and production as well as methane emission from landfills. A diversion rate of 48 percent has been achieved on a statewide basis. Therefore, a 2 percent additional reduction is needed.	Solid waste services are expected to be provided by the City or County of Madera, which are subject to the state's recycling requirements. The development would not affect City or County diversion goals as waste from tribal land is classified as out-of-state waste and is not calculated in local waste diversion statistics.
Water Use Efficiency: Approximately 19 percent of all electricity, 30 percent of all natural gas, and 88 million gallons of diesel are used to convey, treat, distribute and use water and wastewater. Increasing the efficiency of water transport and reducing water use would reduce greenhouse gas emissions	As discussed in Section 2.0, Alternative A would include substantial water conservation, including the extensive use of recycled water, thus complying with the strategy to use water efficiently.

Source: State of California, Environmental Protection Agency, and Climate Action Team, 2006; AES, 2008.

BIOLOGICAL RESOURCES

This section analyzes the potential effects of Alternative A in conjunction with other projects on biological resources, including wildlife and habitats, Federally listed species, migratory birds, and jurisdictional waters of the U.S.

Wildlife and Habitats

Alternative A would not result in significant direct or indirect effects to wildlife and habitats, including state listed species. However, disturbance to habitats and increases in human activity within the vicinity from other proposed projects, including the Caltrans SR-99 freeway improvement projects and local planned development projects, could incrementally contribute to past, present and future effects to wildlife and habitats. The habitat on the Madera site that would be disturbed by

Alternative A is presently disturbed agricultural land, which is of relatively little biological value. In addition, sensitive wetland habitat on the Madera site would be avoided. Thus, Alternative A's contribution to the cumulative effects to wildlife and habitats in the region would be less than significant.

Federally Listed Species

Alternative A would not result in significant cumulative effects to Federally listed species. However, disturbance to vernal pools, burrowing owl habitat, San Joaquin pocket mouse habitat, San Joaquin kit fox habitat, and California tiger salamander habitat and increases in human activity within the vicinity from other proposed projects, including the Caltrans SR-99 freeway improvement projects and local planned development projects, could cumulatively affect Federally listed species. This is a potentially significant cumulative impact to threatened and/or endangered species. Other projects in the area will comply with local and Federal laws regulating threatened and/or endangered species to avoid impacts to such species, and unavoidable impacts will be adequately mitigated through the US Fish and Wildlife Service (USFWS). Therefore, a less than significant cumulative effect to Federally listed species would result. Nonetheless, mitigation is discussed in **Section 5.2.4**.

Migratory Birds

Alternative A and other projects, when considered cumulatively, could result in potentially significant impacts to nesting migratory birds. Other projects in the area will avoid and/or adequately mitigate for migratory birds by following the regulations set forth in the Migratory Bird Treaty Act. Potential significant direct effects to migratory birds and other special status species will be avoided or minimized by implementation of the mitigation measures identified in **Section 5.2.4**.

Waters of the U.S.

Alternative A would not directly affect any waters of the U.S. Any adverse indirect effects to waters of the U.S. would be avoided by the implementation of project features designed to prevent increased erosion and sedimentation and increase flood storage on the site. Other projects in the area will follow the provisions set forth in the Clean Water Act to reduce project impacts to a less than significant level. Therefore, Alternative A, in combination with other development projects, would not result in significant cumulative effects to waters of the U.S.

CULTURAL RESOURCES

Cumulative effects to cultural resources typically occur when sites that contain cultural features or artifacts are disturbed by development. As these resources are destroyed or displaced, important information is lost and connections to past events, people and cultures is diminished. As the City of Madera and Madera County continue to grow, resources, including historic buildings and archaeological sites, may be lost. Madera County contains extensive cultural resources, including Mono Indian sites and historical sites associated with early ranching, homesteads, and mining. Sites in Madera County include Native American archaeological sites with bedrock mortars, village sites,

and dance houses or roundhouses; and historic sites, including historic mines, homes, and churches. Impacts to these cultural resources are likely to occur as residential and commercial growth occurs in Madera County, including near the community of Madera and its surrounding cities.

No significant cultural resources were identified within or adjacent to Alternative A. However, the records search and archival research indicate that the study area is in a region sensitive for both prehistoric/pre-contact resources and historic-period resources. Prehistoric archaeological sites recorded in the general vicinity of the project area include rock alignments, human cremations, habitation areas, trails, and lithic scatters. Known historic-period archaeological sites in the general area include wagon roads, trails, homesteads and ranches. Based on this sensitivity, Alternative A may impact previously unknown buried archaeological resources, as archaeological sites may be buried with no surface manifestation. Significant cumulative impacts to cultural resources could occur if sites continued to be lost, damaged, or destroyed without appropriate recordation, preservation, or data recovery. Mitigation for potential cumulative impacts to unknown cultural resources has been specified in **Section 5.2.5**. Implementation of these mitigation measures would reduce impacts to less than significant.

SOCIOECONOMIC CONDITIONS

Cumulative socioeconomic effects could occur in the project area (in this case, Madera County) as the result of developments that affect the lifestyle and economic well being of residents. Examples of cumulative socioeconomic impacts might include urban blight, increased crime, changes in a community's tax base, and changes in the ability to access private property.

Future Conditions

Madera County's population is projected to increase rapidly to approximately 219,832 by 2030 (a 77 percent increase from 2000 data) (California Department of Finance, 2005). This is greater than the expected State population increase of 41 percent in the same time period. The San Joaquin Valley in general has recently been growing at a high rate due partially to rapidly increasing land values throughout the state and the loss of developable land in other areas of the state. Areas of the San Joaquin Valley, including Madera County have remained relatively affordable, enticing individuals and businesses to move to the area. Rapidly increasing development has led to the start of a diversification of the local economy from an agriculture dominated economy.

Incremental Cumulative Effect

Expected future population would be increased by Alternative A's expected population growth of 836 (see **Section 4.7.1**). Alternative A would introduce a substantial new source of economic activity to Madera County. Once operational, Alternative A's casino/hotel resort would become one of Madera County's largest employers. The creation of jobs would serve the growing County population. Alternative A would add to the diversification of the local economy.

As population growth occurs in the region, fiscal demands on local governments will increase for necessary services. The local governments in the region address increased service demand from new developments by requiring various development fees and assessments. Alternative A would not be subject to development fees. However, as identified in **Sections 2.2.10, 4.7.1, and 5.2.6**, the Tribe has entered into a Memoranda of Understanding (MOU) with Madera County and the City of Madera, by which the Tribe agrees to pay fees equivalent to development fees, ensuring that Alternative A's impact to the cumulative fiscal demands on local government is less than significant.

RESOURCE USE PATTERNS

Transportation/Circulation

Methodologies

The future cumulative (2030) traffic volumes were calculated using growth increment/growth rate data developed from the 2001 and the 2025 Without Project Madera County Transportation Commission (MCTC) model runs. Additionally, the 2025 model year data (by TAZ) were adjusted to include the general plan amendments that occurred after the development of the MCTC model (**Appendix M**). For City and Caltrans segments and intersections that are showing negative or no growth by 2030, a 1 percent growth factor applied to the existing count data was used to calculate the 2030 Without Project volumes and should be considered a worst-case assumption. For County segments and intersections that are showing negative or no growth by 2030, a 3 percent growth factor applied to the existing count data was used to calculate the 2030 Without Project traffic volumes and should be considered a worst-case assumption. The various local jurisdictions each reviewed and approved of these worst-case assumptions.

2030 Traffic Condition Without Project

Figures 4.11-8 and 4.11-9 present the 2030 Cumulative lane configuration and intersection control for the Madera site study intersections.

Freeway and Roadway Segment Performance. As presented in **Table 4.11-12**, the following six freeway segments and one roadway segment are shown to operate at an unacceptable LOS without the addition of project traffic:

- SR-99 NB – North of Avenue 18 ½
- SR-99 SB – North of Avenue 18½
- SR-99 NB – Avenue 18½ to Avenue 17
- SR-99 SB – Avenue 18½ to Avenue 17
- SR-99 NB – South of Avenue 17
- SR-99 SB – South of Avenue 17
- Avenue 17 – SR-99 to Road 27

Figure 4.11-8 Madera Site – 2030 Lane Configuration and Intersection Control

Figure 4.11-9 Madera Site – 2030 Lane Configuration and Intersection Control

TABLE 4.11-12
FREEWAY AND ROADWAY SEGMENT PERFORMANCE – 2030 WITHOUT PROJECT (MADERA SITE)

Segment	LOS Threshold	2030 w/o Project			
		LOS		Density (pc/mi/ln) ¹	
		AM	PM	AM	PM
Freeway Segment					
<i>SR-99 NB – North of Avenue 18 ½</i>	C	C	D	25.2	26.1
<i>SR-99 SB – North of Avenue 18 ½</i>	C	C	E	20.3	35.2
<i>SR-99 NB – Avenue 18 ½ to Avenue 17</i>	C	D	D	28.3	28.9
<i>SR-99 SB – Avenue 18 ½ to Avenue 17</i>	C	C	E	22.2	41.9
<i>SR-99 NB – South of Avenue 17</i>	C	D	F	33.1	---
<i>SR-99 SB – South of Avenue 17</i>	C	C	F	23.3	---
Roadway Segment					
<i>Avenue 18½ - Road 24 to Road 23</i>	D	C	D	NA	NA
<i>Road 23 – Avenue 18½ to Avenue 17</i>	D	D	D	NA	NA
<i>Avenue 17 – Road 23 to SR-99</i>	D	A	D	NA	NA
<i>Avenue 17 – SR-99 to Road 27</i>	D	B	E	NA	NA
<i>Golden State Boulevard – Avenue 17 to Road 23</i>	D	A	A	NA	NA

SOURCE: TPG Consulting, Inc. 2006; AES 2006.

NOTES: **Bold** text denotes unacceptable LOS.

NA= not applicable

¹ density = passenger car per mile per lane

--- = beyond software limitations

Intersection Operations. The 2030 Without Project traffic volumes are presented in **Figures 4.11-10** and **4.11-11**. As presented in **Table 4.11-13**, the following 13 intersections are forecast to operate at an unacceptable LOS without the addition of project traffic:

- Avenue 17 at SR-99 SB ramps
- Avenue 17 at SR-99 NB ramps
- Avenue 12/Golden State Boulevard at SR-99 SB ramps
- Avenue 12 at Golden State Boulevard
- Avenue 12 at SR-99 NB ramps
- Avenue 17 at Road 23
- Avenue 17 at Golden State Boulevard
- Cleveland Avenue/Avenue 15½ at SR-99 NB ramps
- Cleveland Avenue/Avenue 15½ at SR-99 SB ramps
- SR-145/Madera Ave at SR-99 NB ramps
- Olive Avenue/Avenue 14 at SR-99 SB off-ramp
- Olive Avenue/Avenue 14/SR-99 SB on-ramp at SR-145
- Avenue 18½ at Golden State Boulevard/Road 23- WB approach
- Avenue 18½ at Golden State Boulevard/Road 23- EB approach

Figure 4.11-10

Figure 4.11-11

TABLE 4.11-13
PEAK HOUR INTERSECTION CONDITIONS – 2030 WITHOUT PROJECT (MADERA SITE)

Intersection	LOS Thres-hold	2030 w/o Project			
		AM		PM	
		LOS	Delay (secs) ¹	LOS	Delay (secs)
Avenue 18½ at SR-99 SB ramps/Road 23	C	A	9.4	B	14.8
Avenue 18½ at SR-99 NB ramps	C	C	27.9	C	30.2
Avenue 17 at SR-99 SB ramps	C	A	7.9	F	87.5
Avenue 17 at SR-99 NB ramps	C	C	26.5	F	113.6
Avenue 12/Golden State Boulevard at SR-99 SB ramps	C	D	41.8	F	245.9
Avenue 12 at Golden State Boulevard	D	F	126.8	F	418.3
Avenue 12 at SR-99 NB ramps	C	D	41.7	F	243.3
Avenue 18 at Road 23					
• NB Left-Through-Right		A	8.1	A	8.7
• SB Left-Through-Right	D	A	8.2	A	8.6
• WB Approach		B	14.3	C	15.6
• EB Approach		B	14.8	C	25.0
Avenue 17 at Road 23	D	B	18.1	C	26.4
Avenue 17 at Golden State Boulevard	D	C	24.1	F	125.9
Ellis Street at Road 26	D	C	22.2	C	24.4
Avenue 15½ at Road 23					
• NB Left-Through-Right		A	8.2	A	9.1
• SB Left-Through-Right	D	A	8.2	A	8.8
• WB Approach		C	15.8	D	25.8
• EB Approach		B	14.6	D	25.3
Avenue 14 at Road 23	D	B	15.9	C	22.8
Avenue 16 at SR-99 SB ramps	C	B	14.8	C	21.3
Avenue 16/Ellis Street at Golden State Boulevard	C	C	22.8	E	72.4
Avenue 16/Ellis Street at SR 99 SB Ramps	C	B	13.7	E	69.9
Avenue 16/Ellis Street at SR 99 NB Ramps	C	C	27.5	F	153.0
Cleveland Avenue/Avenue 15½ at SR-99 NB ramps	C	C	24.5	F	177.3
Cleveland Avenue/Avenue 15½ at SR-99 SB ramps	C	C	27.1	F	202.0
SR-145/Madera Avenue at SR-99 NB ramps	C	C	20.3	F	53.2
Olive Avenue/Avenue 14 at SR-99 SB off-ramp	C	F	101.7	F	273.1
Olive Avenue/Avenue 14/SR-99 SB on-ramp at SR-145	C	F	102.5	F	357.7
Avenue 18½ at Pistachio Drive					
• EB Approach		A	9.9	B	11.1
	D				
• SB Right		C	19.8	D	33.4
Avenue 18½ at Golden State Boulevard/road 23	D				

• NB left-Through-Right	A	7.7	A	7.8
• SB Left-Through-Right	B	10.0	B	12.7
• WB Approach	F	974.3	F	---
• EB Approach	F	---	F	---

NOTES:¹ delay in seconds

Bold text denotes unacceptable LOS.

OF = overflow

--- = beyond software limitations

SOURCE: TPG Consulting, Inc. 2006; AES 2006.

2030 Traffic Conditions With Project

This section discusses the 2030 traffic conditions with Alternative A project trips added. The 2030 Without Project conditions are reported as a baseline. **Figures 4.11-12** and **4.11-13** present the 2030 lane configuration and intersection control considered to be in place at that time after the implementation of Alternative A. The 2030 lane configuration and intersection control represent the existing configuration and controls plus improvements needed to mitigate impacts from the addition of project traffic generated under Alternative A in the Build-Out (2008) condition.

existing configuration and controls plus improvements needed to mitigate impacts from the addition of project traffic generated under Alternative A in the Build-Out (2008) condition.

Freeway and Roadway Segment Performance. The 2030 Without Project traffic volumes were combined with vehicle trips expected to be generated by Alternative A. **Table 4.11-14** summarizes the 2030 With Alternative A peak hour freeway and roadway segment conditions. The 2030 Without Project conditions are provided as a baseline. With the addition of project traffic under Alternative A, the following six freeway segment and one roadway segment are shown to operate at an unacceptable LOS:

- SR-99 NB – North of Avenue 18½
- SR-99 SB – North of Avenue 18½
- SR-99 NB – Avenue 18½ to Avenue 17
- SR-99 SB – Avenue 18½ to Avenue 17
- SR-99 NB – South of Avenue 17
- SR-99 SB – South of Avenue 17
- Avenue 17 – Road 23 to Road SR-99

Figure 4.11-12 2030 Lane Configuration and Intersection Control With Alternative A

Figure 4.11-13 2030 Lane Configuration and Intersection Control With Alternative A

TABLE 4.11-14
FREEWAY AND ROADWAY SEGMENT PERFORMANCE –
2030 WITH ALTERNATIVE A

Segment	LOS		2030				With Alternative A			
	Threshold	LOS		Density (pc/mi/ln) ¹		LOS		Density (pc/mi/ln)		
		AM	PM	AM	PM	AM	PM	AM	PM	
Freeway Segment										
<i>SR-99 NB – North of Avenue 18 ½</i>	C	C	D	25.2	26.1	C	D	25.4	26.5	
<i>SR-99 SB – North of Avenue 18 ½</i>	C	C	E	20.3	35.2	C	E	20.6	36.0	
<i>SR-99 NB – Avenue 18 ½ to Avenue 17</i>	C	D	D	28.3	28.9	D	D	28.3	28.9	
<i>SR-99 SB – Avenue 18 ½ to Avenue 17</i>	C	C	E	22.2	41.9	C	E	22.2	41.9	
<i>SR-99 NB – South of Avenue 17</i>	C	D	F	33.1	---	E	F	36.8	---	
<i>SR-99 SB – South of Avenue 17</i>	C	C	F	23.3	---	B	E	17.9	35.7	
Roadway Segment										
<i>Avenue 18½ - Road 24 to Road 23</i>	D	C	D	NA	NA	C	D	NA	NA	
<i>Road 23 – Avenue 18½ to Avenue 17</i>	D	D	D	NA	NA	D	D	NA	NA	
<i>Avenue 17 – Road 23 to SR-99</i>	D	A	D	NA	NA	A	E	NA	NA	
<i>Avenue 17 – SR-99 to Road 27</i>	D	B	E	NA	NA	A	B	NA	NA	
<i>Golden State Boulevard – Avenue 17 to Road 23</i>	D	A	A	NA	NA	A	B	NA	NA	

NOTES: **Bold** text denotes unacceptable LOS.

NA = not applicable

¹ density = passenger car per mile per lane

OF = overflow

--- = beyond software limitations

SOURCE: TPG Consulting, Inc., 2006; AES 2006.

Intersection Operations. Table 4.11-15 summarizes the 2030 With Alternative A peak hour intersection conditions. The 2030 Without Project intersection conditions are provided as a baseline. The 2030 Without Project traffic volumes were combined with vehicle trips expected to be generated by Alternative A. With the addition of project traffic under Alternative A, the following 17 study intersections are forecast to operate at an unacceptable LOS:

- Avenue 17 at SR-99 SB ramps
- Avenue 17 at SR-99 NB ramps
- Avenue 12/Golden State Boulevard at SR-99 SB ramps
- Avenue 12 at Golden State Boulevard
- Avenue 12 at SR-99 NB ramps
- Avenue 18 at Road 23 EB approach
- Avenue 18 at Road 23 EB approach
- Avenue 17 at Golden State Boulevard
- Avenue 16/Ellis Street at Golden State Boulevard
- Avenue 16/Ellis Street at SR 99 SB ramps
- Avenue 16/Ellis Street at SR 99 NB ramps
- Cleveland Avenue/Avenue 15½ at SR-99 NB ramps

TABLE 4.11-15
PEAK HOUR INTERSECTION CONDITIONS – 2030 WITH ALTERNATIVE A

Intersection	LOS Threshold	2030				With Project			
		AM		PM		AM		PM	
		LOS	Delay (secs) ¹	LOS	Delay (secs)	LOS	Delay (secs)	LOS	Delay (secs)
Avenue 18½ at SR-99 SB ramps/Road 23	C	A	9.4	B	14.8	B	10.1	C	20.9
Avenue 18½ at SR-99 NB ramps	C	C	27.8	C	30.2	C	27.8	C	28.3
Avenue 17 at SR-99 SB ramps	C	A	7.9	F	87.5	A	8.3	F	176.1
Avenue 17 at SR-99 NB ramps	C	C	26.5	F	113.6	D	36.1	F	146.5
Avenue 12/Golden State Boulevard at SR-99 SB ramps	C	D	41.8	F	245.9	D	51.2	F	251.3
Avenue 12 at Golden State Boulevard	D	F	126.8	F	418.3	F	126.0	F	420.3
Avenue 12 at SR-99 NB ramps	C	D	41.7	F	243.3	D	44.5	F	251.7
Avenue 18 at Road 23									
• NB left-Through-Right	D	A	8.1	A	8.7	A	8.1	A	8.7
• SB left-Through-Right		A	8.2	A	8.6	A	8.4	A	9.0
• WB Approach		B	14.3	C	15.6	B	14.2	C	17.0
• EB Approach		B	14.8	C	25.0	C	18.0	E	39.4
Avenue 17 at Road 23	D	B	18.1	C	26.4	B	18.5	C	27.7
Avenue 17 at Golden State Boulevard	D	C	24.1	F	125.9	C	26.2	F	241.8
Ellis Street at Road 26	D	C	22.2	C	24.4	C	22.4	C	25.0
Avenue 15½ at Road 23									
• NB left-Through-Right	D	A	8.2	A	9.1	A	8.2	A	9.2
• SB left-Through-Right		A	8.2	A	8.8	A	8.3	A	8.9
• WB Approach		C	15.8	D	25.8	C	16.5	D	28.8
• EB Approach		B	14.6	D	25.3	C	15.1	D	27.8
Avenue 14 at Road 23	D	B	15.9	C	22.8	B	18.7	C	23.0
Avenue 16/Ellis Street at Golden State Boulevard	C	C	22.8	E	72.4	C	22.6	E	78.5
Avenue 16/Ellis Street at SR 99 SB ramps	C	B	13.7	E	69.9	B	14.1	E	79.0
Avenue 16/Ellis Street at SR 99 NB ramps	C	C	27.5	F	153.0	C	29.5	F	163.6
Cleveland Avenue/Avenue 15½ at SR-99 NB ramps	C	C	24.5	F	177.3	C	25.4	F	178.2
Cleveland Avenue/Avenue 15½ at SR-99 SB ramps	C	C	27.1	F	202.0	B	15.5	F	113.4
SR-145/Madera Avenue at SR-99 NB ramps	C	C	20.3	D	53.2	C	21.0	E	59.6
Olive Avenue/Avenue 14 at SR-99 SB off-ramp	C	F	101.7	F	273.1	F	103.5	F	280.1
Olive Avenue/Avenue 14/SR-99 SB on-ramp at SR-145	C	F	102.5	F	357.7	F	104.1	F	368.9
Avenue 18½ at Pistachio Drive	C								
• EB Approach		A	9.9	B	11.1	A	9.9	B	11.1

Intersection	LOS Threshold	2030				With Project			
		AM		PM		AM		PM	
		LOS	Delay (secs) ¹	LOS	Delay (secs)	LOS	Delay (secs)	LOS	Delay (secs)
• SB Right		C	19.8	D	33.4	C	19.8	D	33.4
Avenue 18½ at Golden State Boulevard/Road 23									
• NB left-Through-Right	C	A	7.7	A	7.8	A	7.7	A	7.8
• SB left-Through-Right		B	10.0	B	12.7	B	10.0	B	12.7
• WB Approach		F	974.3	F	---	F	974.3	F	---
• EB Approach		F	---	F	---	F	---	F	---

NOTES: ¹ delay in seconds

Bold text denotes unacceptable LOS.

OF = overflow

--- = beyond software limitations

SOURCE: TPG Consulting, Inc., 2006; AES 2006.

- Cleveland Avenue/Avenue 15½ at SR-99 SB ramps
- SR-145/Madera Avenue at SR-99 NB ramps
- Olive Avenue/Avenue 14 at SR-99 SB off-ramp
- Olive Avenue/Avenue 14/SR-99 SB on-ramp at SR-145
- Avenue 18½ at Pistachio Drive SB right
- Avenue 18½ at Golden State Boulevard/Road 23 WB approach
- Avenue 18½ at Golden State Boulevard/Road 23 EB approach

Figures 4.11-14 and 4.11-15 present the 2030 With Alternative A intersection volumes at each of the Madera site study intersections.

Impact Analysis

With the addition of project traffic under Alternative A, 6 freeway segments, 1 roadway segment, and 18 intersections are shown to operate at an unacceptable LOS, resulting in a significant impact. Mitigation measures for the 2030 With Project (Alternative A) conditions are discussed in Section 5.2.7 of this document. With the incorporation of project mitigation measures, each of the intersections and roadway segments that are shown to have an unacceptable LOS would be improved to an acceptable LOS. This would result in a less than significant impact.

Land Use

Cumulative land use effects that may occur in Madera County include:

- Conflicts with existing land uses.
- Preclusion of planned land uses.
- Disruption of access to existing or planned land uses.
- Disruption of orderly development.
- Creation of impediments to local planning documents.
- Unexpected/unplanned growth.

Insert Figure 4.11-14 2030 Intersection Volumes With Alternative A

Insert Figure 4.11-15 2030 Intersection Volumes with Alternative A

Although Alternative A would not be entirely consistent with all of the goals and policies of the Madera County General Plan, as noted in **Section 4.8.1**, no significant effects, such as precluding existing or planned land uses or disruption of access or conflicts with existing land uses, have been identified. Since no other tribal projects are planned on the Madera site and all other development occurring around the Madera site would be required to comply fully with local planning guidelines, no significant cumulative land use effects would occur.

Agriculture

The development projects in the area would lead to a loss of agricultural land. From 2000 to 2002 Madera County has seen a loss of 4,134 acres of agricultural lands. Conversion to urban uses accounted for 28 percent of the lost farmland during this period. Conversion to other land uses, primarily the creation of ranchettes and small water bodies accounted for the remaining 72 percent of the lost farmland. Assuming this trend continues due to the future population increase expected in Madera County, tens of thousands of acres of farmland would be lost during the next several decades. Development of a portion of the Madera site would contribute to the future regional loss of farmland.

Development would not otherwise affect agriculture in the region. Water allocations, for instance, would not be affected by Alternative A. Given that Alternative A would not induce further development in the region (**Section 4.12.1**) and would develop less than half of the Madera site, the loss of farmland is not considered a significant contribution to the cumulative loss of agricultural land. Nonetheless, mitigation measures have been included in **Section 5.2.7** that would further reduce Alternative A's cumulative impacts to agriculture.

PUBLIC SERVICES

Public Water Utilities

As described in **Section 4.3**, Alternative A would not cause a loss of capacity with any public water utility. Thus, the cumulative effects of cumulative development on public water systems would not affect or be affected by Alternative A. A significant cumulative impact would not result. Cumulative effects to the groundwater basin are discussed above under *Water Resources*.

Off-Site Wastewater Service

Cumulative effects related to off-site wastewater treatment and disposal could occur in the project area as the result of inadequate treatment capacity of local and regional wastewater service providers.

Table 4.11-16 lists the estimated flows at the City of Madera wastewater treatment plant (WWTP) along with the WWTP's capacity before and after expansion. The table also lists the average daily flows for Alternative A as well as the total combined flows.

As can be seen in **Table 4.11-16**, the WWTP expansion would provide the City with sufficient capacity until 2023. Alternative A would require approximately 0.27 MGD of treatment capacity.

Since the Madera site is outside of the City's service area, the Tribe would be required to develop an agreement with the City for connection to wastewater treatment services. The agreement would ensure that the City has the desire and capacity to accept wastewater for Alternative A and will require that the Tribe pay all costs to develop wastewater service lines to the property and the continuing costs of service. Nonetheless, treatment of wastewater from the Alternative A would result in the capacity of the wastewater treatment plant being exceeded earlier than anticipated. This impact is considered significant. Mitigation is listed in **Section 5.2.8** to reduce this impact to less than significant.

TABLE 4.11-16
PROJECTED FLOWS FOR THE CITY OF MADERA WWTP

Year	WWTP Capacity	City of Madera Projected Average Daily Flow	Alternative A Average Daily Flow	Total Combined Flow
2005	7	5.70	0.27	5.97
2010	10.1 ¹	6.67	0.27	6.94
2015	10.1	7.81	0.27	8.08
2020	10.1	9.15	0.27	9.42
2023	10.1	10.1	0.27	10.37

NOTES: ¹ Expansion is scheduled for completion in early 2007.

SOURCE: City of Madera WWTP Predesign Report, 2004.

On-Site Wastewater Service

Cumulative effects related to on-site wastewater treatment and disposal could occur in the project area as the result of inadequate treatment and disposal of wastewater. Adverse effects could include the degradation of surface water so that the wastewater discharges of other public wastewater service agencies are constrained.

As noted in **Sections 4.3.1** and **4.9.1**, given the high quality of effluent that would be discharged from an on-site WWTP, no significant water quality degradation would occur (see **Section 4.3.1**) and thus indirect cumulative effects to downstream public water users and dischargers would be less than significant, even considering the future development and expansion of public wastewater treatment facilities.

Solid Waste

Cumulative effects to solid waste facilities may occur if service providers are unable to provide adequate services to existing and planned development. There are three active transfer stations in Madera County, including the North Fork Transfer Station, Emadco Transfer Station, and Mammoth Recycling Center and Transfer Station. Within the County the only permitted and active landfill is the Fairmead Landfill. The Fairmead Landfill currently receives approximately 600 tons per day and

has a permitted limit of 1,100 tons per day (Jones, pers. comm., 2005). The Alternative A development's solid waste generation would represent 0.69% of the landfill's daily intake. The remaining 500 tons is ample daily capacity for Alternative A and housing and business development expected in Madera County and the City of Madera. The expected closure date of the landfill is 2032. California counties are required to plan for future solid waste needs and submit reports to the California Integrated Waste Management Board. Due to County planning and landfill capacity, the cumulative impacts to solid waste services would be less than significant.

Electricity, Natural Gas, and Telecommunications

For Alternative A and the list of cumulative projects the electric and natural gas supplier is PG&E. SBC is the main telecommunications provider in Madera County and has connections near Alternative A and the cumulative projects. PG&E provides electric and natural gas distribution service to approximately 14 million people throughout a 70,000-square-mile service area in northern and central California, including an extensive network in Madera County. PG&E has confirmed that it can provide service for Alternative A (Rivero, pers. comm., 2005; Harris, pers. comm., 2005). The electrical demands of the anticipated cumulative projects are unknown. PG&E planning departments work with city and county planners to ensure that adequate capacity is available for future development. Individual projects would be responsible for paying development or user fees to receive electrical, natural gas, cable, and telephone services. Thus, the cumulative effects would be less than significant.

Law Enforcement

Cumulative effects related to law enforcement could occur in the region as the result of inadequate police service to serve expanded commercial and residential development. Cumulative developments in unincorporated Madera County may generate a need for additional law enforcement services. Both commercial and housing projects generate calls for service and patrol needs. Adverse effects could include an insufficient number of patrolling officers and inadequate facilities. The local governments in the region address increased service demand from new developments, such as law enforcement services, by requiring various development fees and assessments, and through increased property tax increments related to increases in assessed values. Alternative A would generate a need for additional officers, and through the MOUs with Madera County and the City of Madera, the Tribe is funding additional officers and law enforcement costs (**Appendix C**). Additionally, the positions and funding that the Tribe is funding would be beneficial in providing additional officers for expected growth. Thus, the cumulative effect would be less than significant.

Fire Protection and Emergency Medical Services

Cumulative effects related to fire protection and emergency medical services could occur in the region as the result of inadequate response time to existing and planned development. Adverse effects could include an insufficient number of staff, equipment, and stations to provide for the safety of persons and property. Fire protection for Alternative A and the cumulative projects identified previously, would be provided by the Madera County Fire Department and City of Madera Fire Department. Alternative A would be primarily served by the Madera County Fire Department; thus no significant cumulative effects would occur to the City of Madera Fire Department. Through the MOU the Tribe would provide funding for County fire protection services to serve Alternative A (**Appendix C**). Cumulative developments in unincorporated Madera County may generate a need for additional fire protection and emergency medical services. Services typically provided to housing developments and commercial developments are for medical emergencies and structural fires. Additional positions needed would be funded through the County budget, as the County funds the County Fire Department and is ultimately responsible for providing local fire suppression service. The local governments in the region address increased service demand from new developments, such as fire protection services, by requiring various development fees and assessments, and through increased property tax increments related to increases in assessed values. Additionally, the positions that the Tribe is funding would be beneficial in providing additional firefighters and equipment for expected growth, in cases where they are not needed to serve Alternative A. Thus, the cumulative effect to fire protection services would be less than significant.

Emergency medical services would be provided through a private service provider. These services are primarily funded by the individuals requiring service, through that individual's health insurance provider. The ambulance company's fee structure would account for any additional equipment or staff needed to serve the needs of Alternative A in combination with cumulative population growth. Thus, significant cumulative effects to emergency medical services would not occur.

School Services

As analyzed in **Section 4.7.1**, Alternative A, in combination with other planned development, would result in an increase in students that would need to be accommodated by local school districts. However, this increase in students can be accommodated by existing capacity and planned development of school facilities, which is ongoing due to population growth in Madera County. Thus, a significant cumulative effect to school services would not occur.

OTHER VALUES

Noise

Alternative A would result in changes in traffic noise levels as identified in **Table 4.11-17** for the cumulative year (2030) conditions. According to this table, cumulative project-related traffic noise level increases are only predicted to increase by 1.4 dBA at the nearest receptor. The predicted

cumulative increase in noise is below the FICON significance criteria as illustrated in **Table 3.10-4**. Therefore, there are no significant cumulative noise effects issues associated with this alternative.

TABLE 4.11-17
ALTERNATIVE A PREDICTED NOISE LEVELS FOR YEAR 2030 CONDITIONS

Receptor	2030 No Project L _{eq}	2030 Plus Project L _{eq}	2030 No Project vs. Future Plus Project (Difference)
Alternative A	58.7	58.7	0.0
Residential Receptor	67.8	69.3	1.5

SOURCE: VRPA Technologies, 2005.

Hazardous Materials

Cumulative hazardous materials involvement has the potential to occur as a result of continuing development occurring in the region. This involvement could result from the use of hazardous materials in the construction process or the disturbance of existing hazardous materials present on a construction site. As noted in **Section 3.10**, there are no existing known hazardous materials on the Madera site. The amount and types of hazardous materials that would be stored, used, and generated during the construction and operation of Alternative A could have a potentially significant impact to the environment and public (see **Section 4.10.1**). Mitigation is included in **Section 5.2.9** to reduce potential impacts to less than significant from the construction and operation of Alternative A.

Visual Resources

As growth occurs within Madera County, cumulative effects to visual resources may take place as the result of increased development. However, cumulative development that takes place would be consistent with local land use regulations, including associated design guidelines. Development of Alternative A would not be consistent with all local land use regulations and would contribute to cumulative visual impacts. However, the Madera site is not located in a scenic corridor or an area of high aesthetic value. Substantial development is present in all directions from the Madera site, except to the west. This development includes an adjacent auto recycle yard, an abandoned commercial greenhouse, and substantial light industrial development to the south. The proposed project would be attractively designed as a resort facility and would not constitute a significant cumulative visual effect to an already semi-developed environment.

4.11.3 ALTERNATIVE B – REDUCED INTENSITY

LAND RESOURCES

As with Alternative A, local permitting requirements for construction would address regional stormwater, geotechnical, seismic and mining hazards; therefore, no significant cumulative impacts related to land resources would occur as a result of Alternative B.

WATER RESOURCES

Cumulative effects to water resources would be similar to those of Alternative A, but slightly lessened due to the smaller scale of the facilities proposed by Alternative B. Also the terms of the MID MOU would not apply to Alternative B, resulting in a potentially significant contribution to regional groundwater overdraft conditions. Mitigation measures are contained in **Section 5.2.2** that would reduce this impact to a less than significant level.

AIR QUALITY

Ozone and PM Emissions

In **Table 4.11-6** long-term 2020 operational emissions associated with Alternative B are compared to Countywide emissions forecasts for 2020. In 2020, unmitigated operation of Alternative B is estimated to result in:

- 8.06 tons per year (tpy) of ROG,
- 11.40 tpy of NO_x, and
- 30.07 tpy of PM₁₀ emissions.

Table 4.11-7 presents a comparison of unmitigated operational and area source emissions for Alternative B to SJVAPCD emissions criteria. In 2020, ROG unmitigated emissions generated by Alternative B would still exceed the 10-tpy significance thresholds.

As shown in **Table 4.11-6**, Alternative B generated only 0.143% of the Countywide total NO_x in 2020 and only generated 0.040% of ROG. The PM₁₀ contribution for Alternative B is a little more with 0.34% in 2020. The incremental effect of Alternative B is a relatively minor portion of the Countywide total for one project for ROG, NO_x, and PM₁₀. Alternative B, along with other cumulative development, would exacerbate the regional trend towards higher PM₁₀ emissions but to a less than significant level, because of dust control measures being successfully implemented throughout the air basin.

Reductions in ROG would occur through the implementation of mitigation measures detailed in **Section 5.2.3** and the effects of mitigations as calculated by the URBEMIS model appear in **Table 4.11-8**. However, the full extent of the emission reductions that could be attributed to these mitigations cannot be fully represented by the URBEMIS program. The current, District recommended, version of URBEMIS (version 8.70) allows the user to take advantage of environmental factors such as local serving retail and pedestrian and transit amenities in the area, but it does not allow the user to apply mitigations that are changes in the project that can mitigate the pollution. Therefore, mitigations described in **Section 5.2.3** could potentially reduce the ROG cumulative effects of Alternative B to less than significant but without empirical data to generate a repeatable reduction rate, it is conservatively assumed that no reductions occur and that Alternative B remains a significant cumulative effect on ROG air quality.

Carbon Monoxide Concentrations

As described in the traffic study of the project alternatives, traffic operations at signalized study intersections would be LOS D or better with Alternative B under 2030 long-term future cumulative background conditions and traffic mitigation measures. Based on criteria presented in the University of California Davis Institute of Transportation Studies document *Transportation Project-Level Carbon Monoxide Protocol* (Garza, et al., 1997), intersections operating at LOS D or better typically do not result in CO concentrations that exceed State or Federal standards. Therefore, Alternative B with traffic mitigation measures, in combination with increased traffic from cumulative development, would have a less-than-significant impact on CO air quality.

Odor Effects

Several commercial centers are planned in the area around the intersection of Avenue 17 and State Route 99. The SJVAPCD's list of common types of facilities that have been known to produce odors in the SJV occur mostly in manufacturing/industrial zones and no industrial areas are projected for the area, therefore Alternative B (which would not result in significant odors after the implementation of mitigation measures contained in **Section 5.2.3**), in combination with cumulative development, would have a less than significant odor effect.

Toxic Air Contaminants

Alternative B and other projects, when considered cumulatively, could result in potentially significant impacts from toxic air contaminants. Several commercial centers are planned in the area around the intersection of Avenue 17 and State Route 99. Potential toxic air contaminant sources such as gasoline dispensing facilities and dry cleaners could site in these commercial areas. SJVAPCD permit process, City permitting processes, and future environmental review processes (applied to future development) will combine to ensure that Alternative B in combination with cumulative development would have a less than significant effect from toxic air contaminants

Climate Change

The EPA and CARB approved URBEMIS 2007 emissions modeling software estimates that Alternative B would result in the emission of approximately 1,463 tons per year of CO₂ during construction, which is expected to last 12 months (**Appendix S**). As shown in **Table 4.11-18**, during operation Alternative B would result in the emission of CH₄ and N₂O equivalent to 724 tpy of CO₂e. Indirect emissions of CO₂, CH₄, and N₂O are estimated at 5 tpy of CO₂e. Total annual emissions during operation of Alternative B would be equivalent to 19,529 tpy of CO₂e. Annual Alternative B GHG emissions would be approximately 0.0036 percent of California's predicted contribution to global GHG emissions in 2020 (see **Table 3.4-7**). Alternative B contributions to the annual global GHG emissions in 2020 would be approximately 0.000023 percent.

The same state GHG reduction strategies would apply to Alternative B as Alternative A, given that Alternative B proposes commercial development similar to Alternative A. For the same reasons as Alternative A (see **Table 4.11-11**), Alternative B would not comply with one of the three applicable

strategies, resulting in a potentially significant cumulative impact. A less than significant cumulative impact would result after the implementation of mitigation measures in **Section 5.2.3**.

TABLE 4.11-18
ESTIMATED ALTERNATIVE B OPERATIONAL GHG EMISSIONS

CO ₂ Emissions ¹					
Mobile Sources		Area Sources			Total CO ₂ e
tons per year		tons per year			tons per year
18,567		233			18,800
CH ₄ and N ₂ O Emission from Mobile Sources ²					
Emission Factor (CO ₂ /CH ₄ /N ₂ O)	Miles Traveled	CH ₄	N ₂ O	Total CO ₂ e	
g/mile	miles/day	tons per year		tons per year	
552.08/0.05/0.05	108,773	46	678	724	
Indirect GHG emissions ²					
Emission Factor (Kg of CO ₂ /CH ₄ /N ₂ O)	Estimated kW-h Usage ³	CO ₂	CH ₄	N ₂ O	Indirect CO ₂ e
lb/MW-h	MW-h/year	tons per year			
804.54/0.006/0.0037	29	5	0	0	5
Total Operation CO₂e tons per year					19,529

¹ Estimated from EPA and CARB approved URBEMIS air quality program (**Appendix S**)

² Emission factors from Climate Change Action Registry

³ Estimated using 4,500 kilowatts-hours/month of power used.

Source: URBEMIS, 2007; Climate Change Action Registry, 2007.

BIOLOGICAL RESOURCES

The impacts of Alternative B to biological resources are similar, but lessened due to the smaller scope of Alternative B facilities, when compared with those of Alternative A. As described under Alternative A, impacts to wildlife and habitats, federally listed species, and waters of the U.S. would be less than significant. Potential impacts to migratory birds would remain significant. Mitigation is discussed in **Section 5.2.4**, which would reduce impacts to a less than significant level.

CULTURAL RESOURCES

Significant cumulative impacts to cultural resources could occur if sites were lost, damaged, or destroyed without appropriate recordation or data recovery. Potential cumulative impacts for cultural resources issues would be similar to those of Alternative A. This would be a significant impact. Mitigation for potential cumulative impacts to unknown cultural resources has been specified in **Section 5.2.5**. Implementation of these mitigation measures would reduce impacts to less than significant.

SOCIOECONOMIC CONDITIONS

Cumulative socioeconomic effects of Alternative B would be similar to those of Alternative A, except that population growth would be reduced to 534 (resulting in a reduction to population related impacts – see **Section 4.7.1**), potential economic benefits would be lessened, and the MOU with the County would not apply. Thus, costs would potentially be incurred by the County that would not be compensated by the Tribe, forcing the County to degrade its services for other planned cumulative developments or obtain funds elsewhere, resulting in a potentially significant cumulative effect. This effect would be mitigated to a less than significant level through mitigation measures in **Section 5.2.6**.

RESOURCE USE PATTERNS***Transportation/Circulation******2030 Traffic Condition With Project***

This section discusses the 2030 traffic conditions with Alternative B project trips added. The 2030 Without Project conditions are reported as a baseline. The methodology for obtaining the baseline data is the same as Alternative A. **Figures 4.11-16** and **4.11-17** present the 2030 lane configuration and intersection control considered to be in place at that time. This 2030 lane configuration and intersection control represents the existing configuration and controls plus improvements needed to mitigate impacts from the addition of project traffic generated under Alternative B in the Build-Out (2008) condition.

Freeway and Roadway Segment Performance. The 2030 without Project traffic volumes were combined with vehicle trips expected to be generated by Alternative B. **Table 4.11-19** summarizes the 2030 With Alternative B peak hour freeway and roadway segment conditions. The 2030 Without Project conditions are provided as a baseline. With the addition of project traffic under Alternative B, the following six freeways and one roadway segment are shown to operate at an unacceptable LOS:

- SR-99 NB – North of Avenue 18½
- SR-99 SB – North of Avenue 18½
- SR-99 NB – Avenue 18½ to Avenue 17
- SR-99 SB – Avenue 18½ to Avenue 17
- SR-99 NB – South of Avenue 17
- SR-99 SB – South of Avenue 17
- Avenue 17 – Road 23 to SR-99

Intersection Operations. The 2030 Without Project traffic volumes were combined with vehicle trips expected to be generated by Alternative B. **Table 4.11-20** summarizes the 2030 With Alternative B peak hour intersection conditions. The 2030 Without Project intersection conditions

Figure 4.11-16 Madera Site - 2030 Lane Configuration and Intersection Control with Alternative B

Figure 4.11-17 Madera Site – 2030 Lane Configuration and Intersection Control with Alternative B

are provided as a baseline. With the addition of project traffic under Alternative B, the following 18 study intersections are forecast to operate at an unacceptable LOS:

- Avenue 17 at SR-99 SB ramps
- Avenue 17 at SR-99 NB ramps
- Avenue 12/Golden State Boulevard at SR-99 SB ramps
- Avenue 12 at Golden State Boulevard
- Avenue 12 at SR-99 NB ramps
- Avenue 17 at Golden State Boulevard
- Avenue 16/Ellis Street at Golden State Boulevard
- Avenue 16/Ellis Street at SR 99 SB ramps
- Avenue 16/Ellis Street at SR 99 NB ramps
- Cleveland Avenue/Avenue 15½ at SR 99 NB ramps
- Cleveland Avenue/Avenue 15½ at SR 99 SB ramps
- SR 145/Madera Avenue at SR 99 NB ramps
- Olive Avenue/Avenue 14 at SR 99 SB off-ramp
- Olive Avenue/Avenue 14/SR 99 SB on-ramp at SR 145
- Avenue 18½ at Pistachio Drive
- Avenue 18½ at Golden State Boulevard/Road 23- WB approach
- Avenue 18½ at Golden State Boulevard/Road 23- EB approach

TABLE 4.11-19
FREEWAY AND ROADWAY SEGMENT PERFORMANCE –
2030 WITH ALTERNATIVE B

Segment	LOS Threshold	2030				With Alternative B			
		LOS		Density (pc/mi/ln) ¹		LOS		Density (pc/mi/ln)	
		AM	PM	AM	PM	AM	PM	AM	PM
Freeway Segment									
<i>SR-99 NB – North of Avenue 18½</i>	C	C	D	25.2	26.1	C	D	25.3	26.4
<i>SR-99 SB – North of Avenue 18½</i>	C	C	E	20.3	35.2	C	E	20.5	35.7
<i>SR-99 NB – Avenue 18½ to Avenue 17</i>	C	D	D	28.3	28.9	D	D	28.3	28.9
<i>SR-99 SB – Avenue 18½ to Avenue 17</i>	C	C	E	22.2	41.9	C	E	22.2	41.9
<i>SR-99 NB – South of Avenue 17</i>	C	D	F	33.1	---	E	F	35.6	---
<i>SR-99 SB – South of Avenue 17</i>	C	C	F	23.3	---	B	D	17.7	34.8
Roadway Segment									
<i>Avenue 18½ - Road 24 to Road 23</i>	D	C	D	NA	NA	C	D	NA	NA
<i>Road 23 – Avenue 18½ to Avenue 17</i>	D	D	D	NA	NA	D	D	NA	NA
<i>Avenue 17 – Road 23 to SR-99</i>	D	A	D	NA	NA	A	E	NA	NA
<i>Avenue 17 – SR-99 to Road 27</i>	D	B	E	NA	NA	A	B	NA	NA
<i>Golden State Boulevard – Avenue 17 to Road 23</i>	D	A	A	NA	NA	A	A	NA	NA

NOTES: **Bold** text denotes unacceptable LOS.
 NA = not applicable
 OF = overflow
¹ density = passenger car per mile per lane
 --- = beyond software limitations

SOURCE: TPG Consulting, Inc., 2006; AES 2006.

TABLE 4.11-20
PEAK HOUR INTERSECTION CONDITIONS – 2030 WITH ALTERNATIVE B

Intersection	LOS Threshold	2030				With Project			
		LOS	AM Delay (secs) ¹	LOS	PM Delay (secs)	LOS	AM Delay (secs)	LOS	PM Delay (secs)
Avenue 18½ at SR-99 SB ramps/Road 23	C	A	9.4	B	14.8	A	8.3	B	16.6
Avenue 18½ at SR-99 NB ramps	C	C	27.9	C	30.2	C	27.9	C	31.1
Avenue 17 at SR-99 SB ramps	C	A	7.9	F	87.5	A	8.1	F	150.0
Avenue 17 at SR-99 NB ramps	C	C	26.5	F	113.6	C	32.3	F	135.6
Avenue 12/Golden State Boulevard at SR-99 SB ramps	C	D	41.8	F	245.9	D	50.6	F	251.5
Avenue 12 at Golden State Boulevard	D	F	126.8	F	418.3	F	124.9	F	419.5
Avenue 12 at SR-99 NB ramps	C	D	41.7	F	243.3	D	43.8	F	249.3
Avenue 18 at Road 23									
• NB left-Through-Right	D	A	8.1	A	8.7	A	8.1	A	8.7
• SB left-Through-Right		A	8.2	A	8.6	A	8.3	A	8.9
• WB Approach		B	14.3	C	15.6	B	14.2	C	16.2
• EB Approach		B	14.8	C	25.0	C	26.9	D	33.5
Avenue 17 at Road 23	D	B	18.1	C	26.4	B	18.3	C	27.7
Avenue 17 at Golden State Boulevard	D	C	24.1	F	125.9	C	25.4	F	201.9
Ellis Street at Road 26	D	C	22.2	C	24.4	C	22.9	C	24.8
Avenue 15½ at Road 23									
• NB left-Through-Right	D	A	8.2	A	9.1	A	8.2	A	9.2
• SB left-Through-Right		A	8.2	A	8.8	A	8.3	A	8.8
• WB Approach		C	15.8	D	25.8	C	16.3	D	27.8
• EB Approach		B	14.6	D	25.3	B	14.9	D	26.8
Avenue 14 at Road 23	D	B	15.9	C	22.8	B	16.0	C	22.9
Avenue 16/Ellis Street at Golden State Boulevard	C	C	22.8	E	72.4	C	22.6	E	76.7
Avenue 16/Ellis Street at SR 99 SB ramps	C	B	13.7	E	69.9	B	13.8	E	76.3
Avenue 16/Ellis Street at SR 99 NB ramps	C	C	27.5	F	153.0	C	28.9	F	160.5
Cleveland Avenue/Avenue 15½ at SR-99 NB ramps	C	C	24.5	F	177.3	C	25.3	F	176.6
Cleveland Avenue/Avenue 15½ at SR-99 SB ramps	C	C	27.1	F	202.0	B	15.4	F	109.6
SR-145/Madera Avenue at SR-99 NB ramps	C	C	20.3	D	53.2	B	19.9	E	57.3
Olive Avenue/Avenue 14 at SR-99 SB off-ramp	C	F	101.7	F	273.1	F	102.8	F	272.6

Intersection	LOS Threshold	2030				With Project			
		LOS	AM Delay (secs) ¹	LOS	PM Delay (secs)	LOS	AM Delay (secs)	LOS	PM Delay (secs)
Olive Avenue/Avenue 14/SR-99 SB on-ramp at SR-145	C	F	102.5	F	357.7	F	103.3	F	361.6
Avenue 18½ at Pistachio Drive									
• EB Approach	C	A	9.9	B	11.1	A	9.8	B	11.0
• SB Right		C	19.8	D	33.4	C	19.0	D	30.9
Avenue 18½ at Golden State Boulevard/Road 23									
• NB left-Through-Right	C	A	7.7	A	7.8	A	7.7	A	7.8
• SB left-Through-Right		B	10.0	B	12.7	A	9.8	B	12.3
• WB Approach		F	974.3	F	---	F	687.0	F	---
• EB Approach		F	---	F	---	F	---	F	---

NOTES: ¹ delay in seconds

² Per Caltrans request to analyze Avenue 16/Avenue 16 connector at SR-99 NB ramps and Avenue 16 at SR-99 NB ramp connector instead of Avenue 16 at SR-99 NB ramps.

Bold text denotes unacceptable LOS.

OF = overflow

--- = beyond software limitations

SOURCE: TPG Consulting, Inc., 2006; AES 2006.

Figures 4.11-18 and 4.11-19 present the 2030 With Alternative B intersection volumes at each of the Madera site study intersections.

Impact Analysis

With the addition of project traffic under Alternative B, 6 freeway segments, 1 roadway segment, and 18 intersections are shown to operate at an unacceptable LOS, resulting in a significant impact. Mitigation measures for the 2030 With Project (Alternative B) conditions are discussed in **Section 5.2.7** of this document. With the incorporation of project mitigation measures, each of the intersections and roadway segments that are shown to have an unacceptable LOS would be improved to an acceptable LOS. This would result in a less than significant impact.

Land Use

Cumulative land use effects would be similar to those of Alternative A, given the similar, although reduced intensity, land use. Thus, a less than significant cumulative land use effect would result.

Agriculture

Cumulative effects to agriculture would be similar to those of Alternative A, but reduced due to the reduced intensity development. As with Alternative A, a less than significant cumulative effect to agriculture would result. Nonetheless, mitigation measures have been included in **Section 5.2.7** that would further reduce Alternative B's cumulative impacts to agriculture.

Figure 4.11-18 Madera Site – 2030 Intersection Volumes with Alternative B

Figure 4.11-19 Madera Site – 2030 Intersection Volumes with Alternative B

PUBLIC SERVICES

Effects to public services would be similar to those of Alternative A, except that the MOU with the County would not apply, resulting in potentially significant impacts to public services. Mitigation measures in **Section 5.2.8** would ensure cumulative effects to public services are less than significant.

OTHER VALUES**Noise**

Alternative B would result in changes in traffic noise levels as identified in **Table 4.11-21** for the cumulative year (2030) conditions. According to this table, cumulative project-related traffic noise level increases are only predicted to increase by 0.1 dBA at the site and 1.5 dBA at the nearest receptor. The predicted cumulative increase in noise is below the FICON significance criteria as illustrated in **Table 3.10-4**. Therefore, there are no significant cumulative noise effects issues associated with this alternative.

TABLE 4.11-21
ALTERNATIVE B PREDICTED NOISE LEVELS FOR YEAR 2030 CONDITIONS

Receptor	2030 No Project L _{eq}	2030 Plus Project L _{eq}	2030 No Project vs. Future Plus Project (Difference)
Alternative B	58.0	58.1	0.1
Residential Receptor	67.8	69.3	1.5

SOURCE: VRPA Technologies, 2005.

Hazardous Materials

Cumulative hazardous materials impacts would be similar to Alternative A, given the similar scope of construction that would occur on the Madera site and the identical cumulative development that would occur in the County. The amount and types of hazardous materials that would be stored, used, and generated during the construction and operation of Alternative B could have a potentially significant impact to the environment and public (see **Section 4.10.2**). Mitigation is included in **Section 5.2.9** to reduce potential impacts to less than significant from the construction and operation of Alternative B.

Visual Resources

Cumulative visual resources effects would be similar to those of Alternative A, except reduced in intensity given that Alternative B would not include the development of a hotel. As with Alternative A, a less than significant cumulative visual resources effect would result.

4.11.4 ALTERNATIVE C – NON-GAMING

LAND RESOURCES

As with Alternative A, local permitting requirements for construction would address regional stormwater, geotechnical, seismic and mining hazards; therefore, no cumulative impacts related to land resources would occur as a result of Alternative C.

WATER RESOURCES

Cumulative effects to water resources would be similar to those of Alternative A, but slightly lessened due to the smaller scale of the facilities proposed by Alternative C. Also the terms of the MID MOU would not apply to Alternative C, resulting in a potentially significant contribution to regional groundwater overdraft conditions. Mitigation measures are contained in **Section 5.2.2** that would reduce this impact to a less than significant level.

AIR QUALITY

Ozone and PM Emissions

In **Table 4.11-6** long-term 2020 operational emissions associated with Alternative C are compared to Countywide emissions forecasts for 2020. In 2020, unmitigated operation of Alternative C is estimated to result in:

- 11.35 tpy of ROG,
- 16.20 tpy of NO_x, and
- 42.93 tpy of PM₁₀ emissions.

As shown in **Table 4.11-6**, Alternative C generated only 0.204% of the Countywide total NO_x in 2020 and only generated 0.057% of ROG. The PM₁₀ contribution for Alternative C is a little more with 0.48% in 2020. The incremental effect of Alternative C is a relatively minor portion of the Countywide total for one project for ROG, NO_x, and PM₁₀. Alternative C, along with other cumulative developments, would exacerbate the regional trend towards higher PM₁₀ emissions but to a less than significant level, because of dust control measures being successfully implemented throughout the air basin.

Table 4.11-7 presents a comparison of unmitigated operational and area source emissions for Alternative C to SJVAPCD emissions criteria. In 2020, both ROG and NO_x unmitigated emissions generated by Alternative C would still exceed the 10-tpy significance thresholds. Reductions in ROG and NO_x would occur through the implementation of mitigation measures detailed in **Section 5.2.3** and the effects of mitigations as calculated by the URBEMIS model appear in **Table 4.11-8**. However, the full extent of the emission reductions that could be attributed to these mitigations cannot be fully represented by the URBEMIS program. The current, District recommended, version of URBEMIS (version 8.70) allows the user to take advantage of environmental factors such as local serving retail and pedestrian and transit amenities in the area, but it does not allow the user to apply mitigations that are changes in the project that can mitigate the pollution. Therefore, mitigations described in **Section**

5.2.3 could potentially reduce the cumulative effects of Alternative C to less than significant but without empirical data to generate a repeatable reduction rate, it is conservatively assumed that no reductions occur and that Alternative C remains a significant cumulative effect on air quality.

Carbon Monoxide Concentrations

As described in the traffic study of the project alternatives, traffic operations at signalized study intersections would be LOS D or better with Alternative C under 2030 long-term future cumulative background conditions and traffic mitigation measures. Based on criteria presented in the University of California Davis Institute of Transportation Studies document *Transportation Project-Level Carbon Monoxide Protocol* (Garza, et al., 1997), intersections operating at LOS D or better typically do not result in CO concentrations that exceed State or Federal standards.

Therefore, Alternative C with traffic mitigation measures, in combination with increased traffic from cumulative development, would have a less-than-significant impact on CO air quality.

Odor Effects

Several commercial centers are planned in the area around the intersection of Avenue 17 and State Route 99. The SJVAPCD's list of common types of facilities that have been known to produce odors in the SJV occur mostly in manufacturing/industrial zones and no industrial areas are projected for the area, therefore Alternative C (which would not result in significant odors after the implementation of mitigation measures contained in **Section 5.2.3**), in combination with cumulative development, would have a less than significant odor effect.

Toxic Air Contaminants

Alternative C and other commercial projects, when considered cumulatively, could result in potentially significant impacts from toxic air contaminants. Several other commercial centers are planned in the area around the intersection of Avenue 17 and State Route 99. Potential toxic air contaminant sources such as gasoline dispensing facilities and dry cleaners could site in these commercial areas. SJVAPCD permit process, City permitting processes, and future environmental review processes (applied to future development) will combine to ensure that Alternative C in combination with cumulative development would have a less than significant effect from toxic air contaminants.

Climate Change

The EPA and CARB approved URBEMIS 2007 emissions modeling software estimates that Alternative C would result in the emission of approximately 1,610 tons per year of CO₂ during construction, which is expected to last 12 months (**Appendix S**). As shown in **Table 4.11-22**, during operation Alternative C would result in the emission of CH₄ and N₂O equivalent to 1,034 tpy of CO₂e. Indirect emissions of CO₂, CH₄, and N₂O are estimated at 6 tpy of CO₂e. Total annual emissions during operation of Alternative C would be equivalent to 20,676 tpy of CO₂e. Annual

Alternative C GHG emissions would be approximately 0.0038 percent of California's predicted contribution to global GHG emissions in 2020 (see **Table 3.4-7**). Alternative C contributions to the annual global GHG emissions in 2020 would be approximately 0.0000024 percent.

The same state GHG reduction strategies would apply to Alternative C as Alternative A, given that Alternative C proposes commercial development similar to Alternative A. For the same reasons as Alternative A (see **Table 4.11-11**), Alternative C would not comply with one of the three applicable strategies, resulting in a potentially significant cumulative impact. A less than significant cumulative impact would result after the implementation of mitigation measures in **Section 5.2.3**.

TABLE 4.11-22
ESTIMATED PROJECT OPERATION GHG EMISSIONS

CO₂ Emissions¹					
Mobile Sources		Area Sources		Total CO₂e	
tons per year		tons per year		tons per year	
19,234		402		19,636	
CH₄ and N₂O Emission from Mobile Sources²					
Emission Factor (CO₂/CH₄/N₂O)	Miles Traveled	CH₄	N₂O	Total CO₂e	
g/mile	miles/day	tons per year		tons per year	
552.08/0.05/0.05	155,316	66	969	1,034	
Indirect GHG emissions²					
Emission Factor (Kg of CO₂/CH₄/N₂O) lb/MW-h	Estimated kW-h Usage³ MW-h/year	CO₂	CH₄	N₂O	Indirect CO₂e
			tons per year		
804.54/0.006/0.0037	33	6	0.00	0.00	6
Total Operation CO₂e tons per year					20,676

¹ Estimated from EPA and CARB approved URBEMIS air quality program (**Appendix W**)

² Emission factors from Climate Change Action Registry

³ Estimated using 4,500 kilowatts-hours/month of power used.

Source: URBEMIS, 2007; Climate Change Action Registry, 2007.

BIOLOGICAL RESOURCES

The impacts of Alternative C to biological resources are similar, but lessened due to the smaller scope of Alternative C facilities, when compared with those of Alternative A. As described under Alternative A, impacts to wildlife and habitats, federally listed species, and waters of the U.S. would be less than significant. Potential impacts to migratory birds would remain significant. Mitigation is discussed in **Section 5.2.4**, which would reduce impacts to a less than significant level.

CULTURAL RESOURCES

Significant cumulative impacts to cultural resources could occur if sites were lost, damaged, or destroyed without appropriate recordation or data recovery. Potential cumulative impacts for cultural resources issues would be similar to those of Alternative A. This would be a significant effect. Mitigation for potential cumulative impacts to unknown cultural resources has been specified in **Section 5.2.5**. Implementation of these mitigation measures would reduce impacts to less than significant.

SOCIOECONOMIC CONDITIONS

Cumulative socioeconomic effects of Alternative C would be similar to those of Alternative A, except that potential economic beneficial effects would be lessened, population growth would be reduced to 194 (resulting in a reduction to population related impacts – see **Section 4.7.1**), the concerns with gaming on the site would not apply, and the MOU with the County would not apply. As noted above, a number of cumulative retail projects are currently planned in the vicinity of the Madera site. It is likely that the later of these projects to be developed would not be developed at the same scale as previously planned after the implementation of Alternative C, which would provide a new source of retail competition to the area. As with Alternative B, costs would potentially be incurred by the County which would not be compensated by the Tribe, forcing the County to degrade their services generally in order to provide services to the growing local population or obtain funds elsewhere, resulting in a potentially significant cumulative effect. This effect would be mitigated to a less than significant level through mitigation measures in **Section 5.2.6**.

RESOURCE USE PATTERNS

Transportation/Circulation

2030 Traffic Condition with Project

This section discusses the 2030 traffic conditions with Alternative C project trips added. The 2030 Without Project conditions are reported as a baseline. **Figures 4.11-20** and **4.11-21** present the 2030 lane configuration and intersection control considered to be in place at that time. This 2030 lane configuration and intersection control represents the existing configuration and controls plus improvements needed to mitigate impacts from the addition of project traffic generated under Alternative C in the Build-Out (2008) condition.

Freeway and Roadway Segment Performance. The 2030 Without Project traffic volumes were combined with vehicle trips expected to be generated by Alternative C. **Table 4.11-18** summarizes the 2030 With Alternative C peak hour freeway and roadway segment conditions. The 2030 Without Project conditions are provided as a baseline. With the addition of project traffic under Alternative C, the following six freeway segments and one roadway segment are shown to operate at an unacceptable LOS:

Figure 4.11-20 Madera Site – 2030 Lane Configuration and Intersection Control With Alternative C

Figure 4.11-21 Madera Site – 2030 Lane Configuration and Intersection Control With Alternative C

- SR-99 NB – North of Avenue 18½
- SR-99 SB – North of Avenue 18½
- SR-99 NB – Avenue 18½ to Avenue 17
- SR-99 SB – Avenue 18½ to Avenue 17
- SR-99 NB – South of Avenue 17
- SR-99 SB – South of Avenue 17
- Avenue 17 – Road 23 to SR 99

TABLE 4.11-23
FREEWAY AND ROADWAY SEGMENT PERFORMANCE –
2030 WITH ALTERNATIVE C

Segment	LOS		2030				With Alternative C			
	Threshold	LOS		Density (pc/mi/ln) ¹		LOS		Density (pc/mi/ln)		
		AM	PM	AM	PM	AM	PM	AM	PM	
Freeway Segment										
<i>SR-99 NB – North of Avenue 18½</i>	C	C	D	25.2	26.1	C	D	25.4	26.5	
<i>SR-99 SB – North of Avenue 18½</i>	C	C	E	20.3	35.2	C	E	20.5	35.9	
<i>SR-99 NB – Avenue 18½ to Avenue 17</i>	C	D	D	28.3	28.9	D	D	28.3	28.9	
<i>SR-99 SB – Avenue 18½ to Avenue 17</i>	C	C	E	22.2	41.9	C	E	22.2	41.9	
<i>SR-99 NB – South of Avenue 17</i>	C	D	F	33.1	---	E	F	35.4	---	
<i>SR-99 SB – South of Avenue 17</i>	C	C	F	23.3	---	B	E	18.0	35.9	
Roadway Segment										
<i>Avenue 18½ - Road 24 to Road 23</i>	D	C	D	NA	NA	C	D	NA	NA	
<i>Road 23 – Avenue 18½ to Avenue 17</i>	D	D	D	NA	NA	D	D	NA	NA	
<i>Avenue 17 – Road 23 to SR 99</i>	D	A	D	NA	NA	A	F	NA	NA	
<i>Avenue 17 – SR 99 to Road 27</i>	D	B	E	NA	NA	A	B	NA	NA	
<i>Golden State Boulevard – Avenue 17 to Road 23</i>	D	A	A	NA	NA	A	B	NA	NA	

NOTES: **Bold** text denotes unacceptable LOS.
 NA = not applicable
 OF = overflow
¹ density = passenger car per mile per lane
 --- = beyond software limitations

SOURCE: TPG Consulting, Inc., 2006; AES 2006.

Intersection Operations. The 2030 Without Project traffic volumes were combined with vehicle trips expected to be generated by Alternative C. **Table 4.11-24** summarizes the 2030 With Alternative C peak hour intersection conditions. The 2030 Without Project intersection conditions are provided as a baseline. With the addition of project traffic under Alternative C, the following 18 study intersections are forecast to operate at an unacceptable LOS:

- Avenue 17 at SR-99 SB ramps
- Avenue 17 at SR-99 NB ramps
- Avenue 12/Golden State Boulevard at SR-99 SB ramps
- Avenue 12 at Golden State Boulevard
- Avenue 12 at SR-99 NB ramps
- Avenue 18 at Road 23
- Avenue 17 at Golden State Boulevard

- Avenue 16/Ellis Street at Golden State Boulevard
- Avenue 16/Ellis Street at SR 99 SB ramps
- Avenue 16/Ellis Street at SR 99 NB ramps
- Cleveland Avenue/Avenue 15½ at SR-99 NB ramps
- Cleveland Avenue/Avenue 15½ at SR-99 SB ramps
- SR-145/Madera Avenue at SR-99 NB ramps
- Olive Avenue/Avenue 14 at SR-99 SB off-ramp
- Avenue 18½ at Golden State Boulevard/Road 23- WB approach
- Avenue 18½ at Golden State Boulevard/Road 23- EB approach
- Olive Avenue/Avenue 14/SR-99 SB on-ramp at SR-145
- Avenue 18½ at Pistachio Drive

TABLE 4.11-24
PEAK HOUR INTERSECTION CONDITIONS -
2030 WITH ALTERNATIVE C

Intersection	LOS Threshold	2030				With Project			
		LOS	AM Delay (secs) ¹	LOS	PM Delay (secs)	LOS	AM Delay (secs)	LOS	PM Delay (secs)
Avenue 18½ at SR-99 SB ramps/Road 23	C	A	9.4	B	14.8	B	10.1	C	20.7
Avenue 18½ at SR-99 NB ramps	C	C	27.9	C	30.2	C	28.6	C	28.4
Avenue 17 at SR-99 SB ramps	C	A	7.9	F	87.5	A	8.0	F	174.4
Avenue 17 at SR-99 NB ramps	C	C	26.5	F	113.6	C	31.4	F	155.0
Avenue 12/Golden State Boulevard at SR-99 SB ramps	C	D	41.8	F	245.9	D	43.3	F	252.1
Avenue 12 at Golden State Boulevard	D	F	126.8	F	418.3	F	134.6	F	420.5
Avenue 12 at SR-99 NB ramps	C	D	41.7	F	243.3	D	43.3	F	251.7
Avenue 18 at Road 23									
• NB left-Through-Right	D	A	8.1	A	8.7	A	8.1	A	8.7
• SB left-Through-Right		A	8.2	A	8.6	A	8.3	A	9.0
• WB Approach		B	14.3	C	15.6	B	13.5	C	17.2
• EB Approach		B	14.8	C	25.0	C	17.0	E	38.8
Avenue 17 at Road 23	D	B	18.1	C	26.4	B	18.4	C	27.7
Avenue 17 at Golden State Boulevard	D	C	24.1	F	125.9	C	28.5	F	259.6
Ellis Street at Road 26	D	C	22.2	C	24.4	C	22.9	C	24.9
Avenue 15½ at Road 23	D								
• NB left-Through-Right	D	A	8.2	A	9.1	A	8.2	A	9.2
• SB left-Through-Right		A	8.2	A	8.8	A	8.3	A	8.9
• WB Approach		C	15.8	D	25.8	C	16.4	D	28.6

Intersection	LOS Threshold	2030				With Project			
		LOS	AM Delay (secs) ¹	LOS	PM Delay (secs)	LOS	AM Delay (secs)	LOS	PM Delay (secs)
• EB Approach Avenue 14 at Road 23	D	B	14.6	D	25.3	B	15.0	D	27.4
		B	15.9	C	22.8	B	16.0	C	23.0
Avenue 16/Ellis Street at Golden State Boulevard	C	C	22.8	E	72.4	C	22.6	E	78.7
Avenue 16/Ellis Street at SR 99 SB ramps	C	B	13.7	E	69.9	B	14.1	E	79.3
Avenue 16/Ellis Street at SR 99 NB ramps	C	C	27.5	F	153.0	C	28.7	F	163.2
Cleveland Avenue/Avenue 15½ at SR-99 NB ramps	C	C	24.5	F	177.3	C	25.4	F	178.4
Cleveland Avenue/Avenue 15½ at SR-99 SB ramps	C	C	27.1	F	202.0	B	15.6	F	113.9
SR-145/Madera Avenue at SR-99 NB ramps	C	C	20.3	D	53.2	C	20.7	E	59.4
Olive Avenue/Avenue 14 at SR-99 SB off-ramp	C	F	101.7	F	273.1	F	110.5	F	280.4
Olive Avenue/Avenue 14/SR-99 SB on-ramp at SR-145	C	F	102.5	F	357.7	F	103.9	F	369.1
Avenue 18½ at Pistachio Drive	C	A	9.9	B	11.1	A	9.8	B	11.1
• EB Approach									
• SB Right		C	19.8	D	33.4	C	18.8	D	33.0
Avenue 18½ at Golden State Boulevard/Road 23	C	A	7.7	A	7.8	A	7.7	A	7.8
• NB left-Through-Right									
• SB left-Through-Right									
• WB Approach									
• EB Approach									
		B	10.0	B	12.7	A	9.8	B	12.6
		F	974.3	F	---	F	684.1	F	---
		F	---	F	---	F	---	F	---

NOTES: ¹ delay in seconds.
² Per Caltrans request to analyze Avenue 16/Avenue 16 connector at SR-99 NB ramps and Avenue 16 at SR-99 NB ramp connector instead of Avenue 16 at SR-99 NB ramps.
Bold text denotes unacceptable LOS.
OF = overflow
--- = beyond software limitations

SOURCE: TPG Consulting, Inc., 2006; AES 2006.

Figures 4.11-22 and 4.11-23 present the 2030 With Alternative C intersection volumes at each of the Madera site study intersections.

Impact Analysis

With the addition of project traffic under Alternative C, 6 freeway segments, 1 roadway segment, and 18 intersections are shown to operate at an unacceptable LOS, resulting in a significant impact. Mitigation measures for the 2030 With Project (Alternative C) conditions are discussed in Section 5.2.7 of this document. With the incorporation of project mitigation measures, each of the intersections and roadway segments that are shown to have an unacceptable LOS would be improved to an acceptable LOS. This would result in a less than significant impact.

Figure 4.11-22 - Madera Site – 2030 Intersection Volumes with Alternative C

Figure 4.11-23 Madera Site – 2030 Intersection Volumes with Alternative C

Land Use

Cumulative land use effects would be lessened when compared to those of Alternative A. Although Alternative C would also not be entirely consistent with many local land use plans, it would represent a more typical type of development than a casino. As with Alternative A, a less than significant cumulative land use effect would result.

Agriculture

Cumulative effects to agriculture would be similar to those of Alternative A, but reduced due to the reduced intensity of development. As with Alternative A, a less than significant cumulative effect to agriculture would result. Nonetheless, mitigation measures have been included in **Section 5.2.7** that would further reduce Alternative C's cumulative impacts to agriculture.

PUBLIC SERVICES

Effects to public services would be similar to those of Alternative A, except that the MOU with the County would not apply, resulting in potentially significant impacts to public services. Mitigation measures in **Section 5.2.8** would ensure cumulative effects to public services are less than significant.

OTHER VALUES**Noise**

Alternative C would result in changes in traffic noise levels as identified in **Table 4.11-25** for the cumulative year (2030) conditions. According to this table, cumulative project-related traffic noise level increases are only predicted to increase by 0.1 dBA at the site and 1.5 dBA at the nearest receptor. The predicted cumulative increase in noise is below the FICON significance criteria as illustrated in **Table 3.10-4**. Therefore, there are no significant cumulative noise effects issues associated with this alternative.

TABLE 4.11-25
ALTERNATIVE C PREDICTED NOISE LEVELS FOR YEAR 2030 CONDITIONS

Receptor	2030 No Project L _{eq}	2030 Plus Project L _{eq}	2030 No Project vs. Future Plus Project (Difference)
Alternative C	61.0	61.1	0.1
Residential Receptor	67.8	69.3	1.5

SOURCE: VRPA Technologies, 2005.

Hazardous Materials

Cumulative hazardous materials impacts would be similar to Alternative A, given the similar scope of construction that would occur on the Madera site and the identical cumulative development that would occur in the County. The amount and types of hazardous materials that would be stored, used, and generated during the construction and operation of Alternative C could have a potentially significant impact to the environment and public (see **Section 4.10.3**). Mitigation is included in **Section 5.2.9** to reduce potential impacts to less than significant from the construction and operation of Alternative C.

Visual Resources

Cumulative visual resources effects would be similar to those of Alternative A. Although the Alternative C development would be a more typical kind of development and smaller in height, it may not be considered as aesthetically attractive as the Alternative A development, although such assessments are subjective. As with Alternative A, a less than significant cumulative visual resources effect would result.

4.11.5 ALTERNATIVE D – NORTH FORK LOCATION

LAND RESOURCES

The geographic area for the analysis of cumulative impacts to land resources is the Sierra Nevada foothill region near the North Fork site. Development planned in this area during the cumulative time period is primarily limited to a moderate growth of rural residential units (see TAZs above). As with Alternative A, local permitting requirements for construction would address regional stormwater, geotechnical, seismic and mining hazards; therefore, no significant cumulative impacts related to land resources would occur as a result of Alternative D.

WATER RESOURCES

A cumulative overdraft situation is not known to exist in the vicinity of the North Fork site, unlike the region containing the Madera site. In addition, intensive cumulative development is not expected in the vicinity of the North Fork site. Finally, the proposed pumping rate for Alternative D is relatively small and is not expected to result in noticeable regional impacts. Thus, a less than significant cumulative impact to groundwater resources would result. Nonetheless, mitigation measures are contained in **Section 5.2.2** to further reduce cumulative groundwater impacts.

Affected water bodies within the North Fork site include Whiskey Creek and Willow Creek. Neither of these waters is listed as impaired on the 303(d) list. Alternative D, in addition to future development in the area, could contribute to changes in runoff characteristics (volume, velocity, and hydrograph) and water quality located near the North Fork site as a result of project development. However, the Tribe has made appropriate design allowances which would reduce the project's

contribution to cumulative effects to a less than significant level, identical to those noted above under Alternative A. Cumulative rural residential developments, which typically result in only minor impacts to water resources, may incorporate many, but not all, of these measures, as required by local regulations. With the incorporation of these features, Alternative D would not result in or contribute to a significant cumulative water resources effect.

AIR QUALITY

Ozone and PM Emissions

In **Table 4.11-6** long-term 2020 operational emissions associated with Alternative D are compared to Countywide emissions forecasts for 2020. In 2020, unmitigated operation of Alternative D is estimated to result in:

- 1.32 tons per year (tpy) of ROG,
- 1.91 tpy of NO_x, and
- 5.18 tpy of PM₁₀ emissions.

As shown in **Table 4.11-6**, Alternative D generated only 0.024% of the Countywide total NO_x in 2020 and only generated 0.007% of ROG. The PM₁₀ contribution for Alternative D is a little more with 0.06% in 2020. The incremental effect of Alternative D is a relatively minor portion of the Countywide total for one project for ROG, NO_x, and PM₁₀. Alternative D, along with other cumulative development, would exacerbate the regional trend towards higher PM₁₀ emissions but to a less than significant level, because of dust control measures being successfully implemented throughout the air basin.

Carbon Monoxide Concentrations

As described in the traffic study of the project alternatives, traffic operations at signalized study intersections would be LOS D or better with Alternative D under 2030 long-term future cumulative background conditions and traffic mitigation measures. Based on criteria presented in the University of California Davis Institute of Transportation Studies document *Transportation Project-Level Carbon Monoxide Protocol* (Garza, *et al.*, 1997), intersections operating at LOS D or better typically do not result in CO concentrations that exceed State or Federal standards. Therefore, Alternative D with traffic mitigation measures, in combination with increased traffic from cumulative development, would have a less-than-significant impact on CO air quality.

Odor Effects

The SJVAPCD's list of common types of facilities that have been known to produce odors in the SJV occur mostly in manufacturing/industrial zones and no industrial areas are projected for the area, therefore Alternative D (which would not result in significant odors after the implementation of mitigation measures contained in **Section 5.2.3**), in combination with cumulative development, would have a less than significant odor effect.

Toxic Air Contaminants

Alternative D and other projects, when considered cumulatively, could result in potentially significant impacts from toxic air contaminants. No industrial or commercial areas are projected for the area; therefore Alternative D in combination with cumulative development would have a less than significant effect from toxic air contaminants.

Climate Change

The EPA and CARB approved URBEMIS 2007 emissions modeling software estimates that Alternative D would result in the emission of approximately 263 tons per year of CO₂ during construction, which is expected to last 12 months (**Appendix S**). As shown in **Table 4.11-26**, during operation Alternative C would result in the emission of CH₄ and N₂O equivalent to 125 tpy of CO₂e. Indirect emissions of CO₂, CH₄, and N₂O are estimated at 4 tpy of CO₂e. Total annual emissions during operation of Alternative D would be equivalent to 20,676 tpy of CO₂e. Annual Alternative D GHG emissions would be approximately 0.00048 percent of California's predicted contribution to global GHG emissions in 2020 (see **Table 3.4-7**). Alternative D contributions to the annual global GHG emissions in 2020 would be approximately 0.0000031 percent.

TABLE 4.11-26
ESTIMATED PROJECT OPERATION GHG EMISSIONS

CO₂ Emissions¹					
Mobile Sources		Area Sources		Total CO₂e	
tons per year		tons per year		tons per year	
2,430		31		2,461	
CH₄ and N₂O Emission from Mobile Sources²					
Emission Factor (CO₂/CH₄/N₂O) g/mile	Miles Traveled miles/day	CH₄ tons per year	N₂O	Total CO₂e tons per year	
552.08/0.05/0.05	18,757	8	117	125	
Indirect GHG emissions²					
Emission Factor (Kg of CO₂/CH₄/N₂O) lb/MW-h	Estimated kW-h Usage³ MW-h/year	CO₂	CH₄	N₂O	Indirect CO₂e
804.54/0.006/0.0037	22	4	0.00	0.00	4
Total Operation CO₂e tons per year					2,590

¹ Estimated from EPA and CARB approved URBEMIS air quality program (**Appendix W**)

² Emission factors from Climate Change Action Registry

³ Estimated using 4,500 kilowatts-hours/month of power used.

Source: URBEMIS, 2007; Climate Change Action Registry, 2007.

The same state GHG reduction strategies would apply to Alternative D as Alternative A, given that Alternative D proposes commercial development similar to Alternative A. For the same reasons as Alternative A (see **Table 4.11-11**), Alternative D would not comply with one of the three applicable strategies, resulting in a potentially significant cumulative impact. A less than significant cumulative impact would result after the implementation of mitigation measures in **Section 5.2.3**.

BIOLOGICAL RESOURCES

This section analyzes the potential effects of Alternative D in conjunction with other projects on biological resources including wildlife and habitats, Federally listed species, migratory birds, and jurisdictional waters of the U.S.

Wildlife and Habitats

Alternative D would not result in significant direct or indirect effects to wildlife and habitats, including state-listed species. However, disturbance to habitats and increases in human activity within the vicinity from other proposed projects, including individual rural residential projects expected in the area, could incrementally contribute to past, present and future effects to wildlife and habitats. The habitat on the Madera site that would be disturbed by Alternative A is presently used for rural residential purposes and open space. However, over 50 percent of the North Fork site would remain in its present state. In addition, most of the sensitive wetland habitat on the North Fork site would be avoided. Thus, Alternative D's contribution to the cumulative effects to wildlife and habitats in the region would be less than significant.

Federally Listed Species

An increase in human activity within the vicinity of the North Fork site from Alternative D and other proposed projects in the area could cumulatively and adversely affect Federally listed species. It is assumed, that other projects in the area will comply with Federal laws regulating threatened and/or endangered species to avoid impacts to such species and unavoidable impacts will be adequately mitigated through the USFWS. Therefore, a less than significant cumulative effect to threatened and/or endangered species would result. Mitigation is discussed in **Section 5.0** and includes mitigation measures for identified plant and animal species found in the region.

Migratory Birds

Alternative D and other projects, when considered cumulatively, could result in significant impacts to nesting migratory birds. This is potentially a significant impact. Other projects in the area will avoid and/or adequately mitigate for migratory birds by following the regulations set forth in the Migratory Bird Treaty Act. Potential adverse direct effects to migratory birds and other special status species will be avoided or minimized (to a less than significant level) by implementation of the mitigation measures identified in **Section 5.2.4**.

Waters of the U.S.

Alternative D would directly affect approximately 0.1 acres of “waters of the U.S.” Mitigation measures are identified in **Section 5.2.4** and include site plan relocation measures to avoid on-site stream impacts. Other projects in the area will follow the provisions set forth in the Clean Water Act to reduce project impacts to a less than significant level of impact. Alternative D would result in less than significant cumulative effects to waters of the U.S after mitigation.

CULTURAL RESOURCES

Significant cumulative impacts to cultural resources could occur if sites were lost, damaged, or destroyed without appropriate recordation or data recovery. Potential cumulative impacts for cultural resources issues would be similar to those of Alternatives A, B and C, except that the North Fork site is located in a more culturally sensitive location than the Madera site. However, less development is also planned during the cumulative time period in the vicinity of the North Fork site. Since no known cultural resources would be affected by Alternative D, and limited cumulative development is planned in the area, a less than significant cumulative effect to known resources would occur. Impacts to unknown cultural resources would be a significant impact. Mitigation for potential cumulative impacts to unknown cultural resources has been specified in **Section 5.2.5**. Implementation of these mitigation measures would reduce impacts to less than significant.

SOCIOECONOMIC CONDITIONS

Cumulative socioeconomic effects of Alternative D would be similar to those of Alternative A, except that beneficial effects to the regional economy would be substantially lessened, population growth would be reduced to 32 (resulting in a reduction to population related impacts – see **Section 4.7.1**), and the MOU with the County would not apply. Thus, costs would potentially be incurred by the County which would not be compensated by the Tribe, forcing the County to degrade their services for other planned cumulative developments or obtain funds elsewhere, resulting in a potentially significant cumulative effect. This effect would be mitigated to a less than significant level through mitigation measures in **Section 5.2.6**.

RESOURCE USE PATTERNS

Transportation/Circulation

2030 Traffic Condition Without Project

This section discusses the 2030 traffic conditions without project trips added. The 2030 Without Project Lane Configuration and Traffic Controls for the North Fork site study intersections are the same as shown in **Section 3.8-2**. No changes in roadway geometry are planned in the North Fork site area between the existing conditions and 2030.

Peak Hour Intersection Operations. **Table 4.11-27** summarizes the 2030 baseline intersection conditions. The following four study intersections are forecast to operate at an unacceptable LOS:

- SR-145 at SR-41
- SR-41 at Road 200- WB approach
- SR-41 at Thornberry Road- WB approach
- SR-41 at SR-49

TABLE 4.11-27
INTERSECTION PERFORMANCE IN THE VICINITY OF THE NORTH FORK SITE - 2030

Intersection	LOS Threshold	2030			
		AM		PM	
		LOS	Delay (secs) ¹	LOS	Delay (secs)
SR-145 at SR-41	C	F	102.3	F	146.6
SR-41 at Road 200					
• SB Left	D	B	10.7	C	15.3
• WB Approach		F	1494	F	1976
SR-41 at Thornberry Road					
• SB Left	C	B	12.7	B	12.5
• WB Approach		F	391.7	F	116.5
SR-41 at SR-49	C	E	75.0	F	104.2
Malum Ridge Road at Road 225 (Mammoth Pool Road)	D	B	10.04	B	10.31
Road 225 (Mammoth Pool Road) at Cascadel Road					
• SB Left	D	A	7.5	A	7.5
• WB Approach		A	9.4	A	9.2
Cascadel Road at Mission Drive (Federal Road 209)					
• <i>WB Left-Through</i>	D	A	7.3	A	7.4
• <i>NB Approach</i>		A	9.1	A	9.1
North Fork Road at Auberry Road					
• NB Left-Through-Right		A	7.6	A	7.7
• SB Left-Through-Right	D	A	7.8	A	7.8
• WB Approach		B	11.0	B	12.2
• EB Approach		B	11.7	B	11.0
North Fork Road at Crane Valley Road	D				
• EB left-Through		A	7.7	A	7.7
• SB Approach		B	10.6	B	12.1

NOTES: ¹ delay in seconds

Bold text denotes unacceptable LOS.

SOURCE: TPG Consulting, 2006; AES, 2006.

2030 Traffic Conditions With Project

This section discusses the 2030 traffic conditions with Alternative D project trips added. The 2030 Without Project conditions are reported as a baseline. **Figure 4.11-24** presents the 2030 lane configuration and intersection control considered to be in place at that time. **Figure 4.11-25** presents the 2030 intersection volumes at each of the North Fork site study intersections. This 2030 lane configuration and intersection control represents the existing configuration and controls plus improvements needed to mitigate impacts from the addition of project traffic generated under Alternative D in the Build-Out (2008) condition.

Figure 4.11-24 North Fork Site – 2030 Lane Configuration and Intersection Control with Alternative D

Figure 4.11-25 North Fork Site – 2030 Intersection Volumes

Peak Hour Intersection Operations. The 2030 Without Project traffic volumes were combined with vehicle trips expected to be generated by Alternative D. **Table 4.11-28** summarizes the 2030 With Alternative D peak hour intersection conditions. The 2030 Without Project intersection conditions are provided as a baseline. With the addition of project traffic under Alternative D, the following four study intersections are forecast to operate at an unacceptable LOS:

- SR-145 at SR-41
- SR-41 at Road 200
- SR-41 at Thornberry Road
- SR-41 at SR-49

TABLE 4.11-28
PEAK HOUR INTERSECTION CONDITIONS - 2030 WITH ALTERNATIVE D

Intersection	LOS Threshold	2030				With Alternative D			
		AM		PM		AM		PM	
		LOS	Delay (secs) ¹	LOS	Delay (secs)	LOS	Delay (secs)	LOS	Delay (secs)
SR-145 at SR-41	C	F	102.3	F	146.6	F	101.5	F	150.9
SR-41 at Road 200						B	18.1	C	23.7
SB Left	D	B	10.7	C	15.3				
WB Approach		F	1494	F	1976				
SR-41 at Thornberry Road						A	9.5	A	8.1
SB Left	C	B	12.7	B	12.5				
WB Approach		F	391.7	F	116.5				
SR-41 at SR-49	C	E	75.0	F	104.2	E	75.0	F	104.7
Malum Ridge Road at Road 225 (Mammoth Pool Road)	D	B	10.04	B	10.31	B	10.37	B	10.99
Road 225 (Mammoth Pool Road) at Cascadel Road	D								
SB Left		A	7.5	A	7.5	A	7.6	A	7.6
WB Approach		A	9.4	A	9.2	A	9.6	A	9.4
Cascadel Road at Mission Drive (Federal Road 209)	D								
WB Left-Through		A	7.3	A	7.4	A	7.4	A	7.5
NB Approach		A	9.1	A	9.1	A	9.3	A	9.4
North Fork Road at Auberry Road	D								
NB Left-Through-Right		A	7.6	A	7.7	A	7.6	A	7.7
SB Left-Through-Right		A	7.8	A	7.8	A	8.6	A	7.8
WB Approach		B	11.0	B	12.2	C	16.9	B	12.5
EB Approach		B	11.7	B	11.0	C	20.0	B	11.2
North Fork Road at Crane Valley Road	D								
EB left-Through		A	7.7	A	7.7	A	7.7	A	7.7
SB Approach		B	10.6	B	12.1	B	10.6	B	12.3

NOTES: ¹ delay in seconds
Bold text denotes unacceptable LOS.

SOURCE: TPG Consulting, 2006; AES, 2006.

Figure 4.11-26 presents the 2030 With Alternative D intersection volumes at each of the North Fork site study intersections.

Impact Analysis

With the addition of project traffic under Alternative D, four study intersections are forecast to operate at an unacceptable LOS, resulting in a significant impact. Mitigation measures for the Build-Out With Project (Alternative D) conditions are discussed in **Section 5.2.7** of this document.

With the incorporation of project mitigation measures, the intersections shown to have an unacceptable LOS would be improved to an acceptable LOS. This would result in a less than significant impact.

Land Use

Although Alternative D would not be entirely consistent with all of the goals and policies of the Madera County General Plan, the General Plan would not apply to the North Fork site, as it is currently trust property. In addition, as noted in **Section 4.8.4**, no significant effects, such as precluding existing or planned land uses or disruption of access or conflicts with existing land uses, have been identified. Since no other tribal projects are planned and all other development occurring around the North Fork site would be required to comply fully with local planning guidelines, no significant cumulative land use effects would occur.

Agriculture

Under Alternative D, a casino would be developed on 5.3 acres of the North Fork site. Soils within the site have not been mapped by the NRCS, and thus have not been designated according to their farming potential. Based on the location and topography of the North Fork site, it is unlikely that the North Fork site contains important farmland. No Storie Index rating is available for the North Fork site because it not considered farmland. Due to the inferior quality of land available for farming purposes on the North Fork site and in the area of cumulative rural residential development in the vicinity of the North Fork site, cumulative impacts to agriculture from the development of Alternative D are considered less than significant.

PUBLIC SERVICES

Cumulative development includes limited rural residential in the vicinity of the North Fork Site. This type of development does not present a significant burden on public services and individual residences would be responsible for obtaining connection to County utilities or paying a fair share of improvement costs in the area. Property taxes on new residences would fund County services such as law enforcement, fire protection, and schools. Cumulative solid waste impacts would be similar to

Insert Figure 4.11-26 North Fork Site – 2030 Intersection Volumes with Alternative D

Alternative A, except substantially reduced (due to the smaller scope of development) and services would be provided by the County. Alternative D would be required to independently contract for public services to the North Fork site and would not add to the incremental effects of surrounding development on public services. Thus, cumulative impacts would be less than significant. Nonetheless, with the mitigation listed in **Section 5.2.8**, cumulative impacts to public services from Alternative D would be further reduced.

OTHER VALUES

Noise

Alternative D would result in changes to traffic noise levels as identified in **Table 4.11-29** for the cumulative year (2030) conditions. According to this table, cumulative project-related traffic noise level increases are only predicted to increase on average by 3.1 dBA. The predicted cumulative increase in noise is below the FICON significance criteria as illustrated in **Table 3.10-4**. Therefore, there are no significant cumulative noise effects issues associated with this alternative.

TABLE 4.11-29
ALTERNATIVE D PREDICTED NOISE LEVELS FOR YEAR 2030 CONDITIONS

Receptor	2030 No Project L _{eq}	2030 Plus Project L _{eq}	2030 No Project vs. Future Plus Project (Difference)
Alternative D	42.2	45.3	3.1

SOURCE: VRPA Technologies, 2005.

Hazardous Materials

Cumulative hazardous materials involvement has the potential to occur as a result of continuing development occurring in the region. This involvement could result from the use of hazardous materials in the construction process or the disturbance of existing hazardous materials present on a construction site. However, the primarily rural residential development occurring in the vicinity of the North Fork site does not typically result in significant use or storage of hazardous materials. As noted in **Section 3.10**, there are no existing known hazardous materials on the North Fork site. The amount and types of hazardous materials that would be stored, used, and generated during the construction and operation of Alternative D could have a potentially significant impact to the environment and public (see **Section 4.10.4**). Mitigation is included in **Section 5.2.9** to reduce potential impacts to less than significant from the construction and operation of Alternative D.

Visual Resources

Cumulative development is limited in the area of the North Fork site. In addition, the North Fork site is not easily visible from public vantage points. Thus, the development proposed by Alternative D would not represent a significant cumulative effect to visual resources.

4.11.7 ALTERNATIVE E – NO ACTION ALTERNATIVE

Under Alternative E, no new development would occur on either the Madera or North Fork sites. Therefore, cumulative trends would continue, but the No Action Alternative would not result in significant contributions to cumulative effects.