4.4 Air Quality

As the Tribe has not adopted their own air quality program, the thresholds of significance established in the Federal General Conformity Rule would normally apply to the Proposed Action and alternatives. The Proposed Action is located in the Northern Sonoma County APCD. Project operation would generate criteria pollutant emissions in that district and also in two others, the Mendocino County APCD and the BAAQMD. Pollutant emissions generated in the Northern Sonoma County APCD and the Mendocino County APCD would not require review under the federal General Conformity Rule because both districts are designated attainment or unclassified for all Federal criteria pollutants. However, the BAAQMD is currently designated nonattainment for ozone and PM 2.5 and is a Maintenance Area for Carbon Monoxide. To ensure compliance with the General Conformity Rule, emissions generated by the project within the BAAQMD have been evaluated to determine whether they would "exceed applicable thresholds or be regionally significant. General Conformity Rule thresholds are presented below in **Table 4.4-1**.

TABLE 4.4-1
GENERAL CONFORMITY RULE THRESHOLDS

VOC or ROG	50 tons per year
NOx	100 tons per year
PM10	100 tons per year
PM2.5	100 tons per year
Carbon Monoxide	100 tons per year

BAAQMD is a Maintenance Area for CO, marginal nonattainment for ozone, and nonattainment for PM2.5.

SOURCE: U.S. EPA (http://www.epa.gov/oar/genconform/deminimis.htm)

Air quality within up to three different air pollution control districts may be affected by the emissions of the Proposed Action and alternatives. The Northern Sonoma Air Pollution Control district (NSCAPCD) is where the project site is located; however, vehicles would be traveling from the Mendocino County Air Pollution Control District (MCAQMD) to the north and from the Bay Area Air Quality Management District (BAAQMD) to the south. The local thresholds for emissions within each district are summarized in **Table 4.4-2**.

Project-related air quality impacts fall into two categories: short-term impacts due to construction, and long-term impacts due to project operation. Operation of the proposed project would result in an increase in emissions due both to project-related motor vehicle trips, stationary sources, and area sources (e.g., landscaping activities, natural gas fuel combustion). Emissions associated with the proposed project have been estimated using an emission inventory model URBEMIS 2007 version 9.2.4, which includes both emissions from mobile and area sources.

TABLE 4.4-2
LOCAL AIR QUALITY DISTRICT THRESHOLDS

Air District	Pollutant	Threshold
NSCAPCD	VOC or ROG	40 tons per year
	NOx	40 tons per year
	PM10	15 tons per year
	Carbon Monoxide	100 tons per year
MCAQMD	VOC or ROG	220 lbs/day
	NOx	220 lbs/day
	PM10	80 lbs/day
	Carbon Monoxide	550 lbs/day
BAAQMD	VOC or ROG	80 lbs/day
	NOx	80 lbs/day
	PM10	80 lbs/day
	Carbon Monoxide	550 lbs/day

Source: NSCAPCD, MCAQMD, BAAQMD, 2009

4.4.1 Alternative A – Proposed Action

Impact 4.4.1-1: Construction Emissions (Potentially Significant)

Construction related emissions would be generated by a variety of activities including: 1) grading, excavation, road building, and other earth moving activities; 2) travel by construction equipment and employee vehicles, especially on unpaved surfaces; 3) exhaust from construction equipment; 4) architectural coatings; and 5) asphalt paving.

PM10 emissions from construction would vary greatly from day to day depending on the level of activity, the equipment being operated, silt content of the soil, and the prevailing weather. Larger-diameter dust particles (i.e., greater than 30 microns) generally fall out of the atmosphere within several hundred feet of construction sites, and represent more of a soiling nuisance than a health hazard. Smaller-diameter particles (e.g., PM10) are associated with adverse health effects and generally remain airborne until removed from the atmosphere by moisture. Therefore, unmitigated construction dust emissions could result in significant local effects.

NOx, ROG, PM10, PM2.5, CO, and CO2 construction emissions were estimated based on default crew, truck trip, and equipment. Emissions are based on criteria pollutant emission factors embedded in the URBEMIS 2007 model. The URBEMIS 2007 results are presented in **Table 4.4-3**. Based on this evaluation, construction emissions would not violate federal standards or NSAPCD thresholds.

Construction activities would be short-term in duration and the impacts would be localized. On-site construction impacts would not subject to North Coast Air Basin standards. However, fugitive dust may become a nuisance during construction to both on-site and adjacent off-site areas. This is a potentially significant impact. **Mitigation Measure 5.4-1** would reduce impacts associated

with dust emissions (PM10) to less than significant. **Mitigation Measures 5.4-2** through **5.4-4** would further reduce impacts associated with construction emissions.

TABLE 4.4-3
ALTERNATIVE A CONSTRUCTION EMISSION ESTIMATES

Unmitigated Annual Operational Emissions (tons/year)	ROG	NOx	CO	PM10	PM2.5
2010 Totals	1	**3**	**3**	**10**	2
2011 Totals	5	**4**	**11**	**<1**	<1
NSCAPCD Significance Thresholds (tons/year)	40	40	100	15	NA
Potentially Significant (Yes or No)?	No	No	No	No	NA

Values in **bold** are in excess of local air district thresholds.
For more details see the AQ appendix.

SOURCE: ESA, 2009.

Toxic Air Contaminants

The greatest potential for TACs emissions would be related to diesel particulate emissions (DPM) associated with heavy equipment operations during grading and excavation activities. Health effects from carcinogenic air toxics are usually described in terms of individual cancer risk. "Individual Cancer Risk" is the likelihood that a person exposed to concentrations of TACs over a 70-year lifetime would contract cancer, based on the use of standard risk-assessment methodology. The project would not result in a long-term (i.e., 70 years) substantial source of TAC emissions. In addition, **Mitigation Measures 5.4-2** through **5.4-4** shall be implemented to reduce DPM during the short-term duration of construction. As such, project-related toxic emission impacts during construction would be less than significant.

Significance after Mitigation: Less than Significant

Impact 4.4.1-2: Operation Emissions (Significant and Unavoidable)

Emissions from both mobile and area sources associated with Alternative A have been estimated using URBEMIS 2007. Traffic estimates are based on the traffic analysis included **Sections 3.8** and **4.8**. Operational emissions (on-road vehicle traffic) were split between three air districts that operational trips would travel through to get to the project site; they are shown below in **Table 4.4-4**. As shown below, operational emissions of NOx, CO, and PM10 would exceed the established NSCAPCD and BAAQMD thresholds for Alternative A. ROG would also exceed the BAAQMD threshold. No operational emissions would exceed MCAQMD thresholds. **Mitigation Measure 5.4-5** is recommended to reduce the significance of this impact; however, the impact would remain significant even after mitigation. Therefore, operation of the project would result in significant and unavoidable impacts to off-site air quality.

TABLE 4.4-4
ALTERNATIVE A OPERATION EMISSION ESTIMATES

Unmitigated Annual Operational Emissions (tons/year)	ROG	NOx	CO	PM10	PM2.5
Operational Emissions – NSCAPCD					
Onroad Vehicle[1] (tons/year)	37	**55**	**585**	**56**	11
NSCAPCD Significance Thresholds (tons/year)	40	40	100	15	NS
Potentially Significant (Yes or No)?	No	Yes	Yes	Yes	NS
Operational Emissions – BAAQMD					
Onroad Vehicle[2] (lbs/day)	**94**	**132**	**1559**	**157**	30
BAAQMD Significance Thresholds (lbs/day)	80	80	550	80	NS
Potentially Significant (Yes or No)?	Yes	Yes	Yes	Yes	NS
Onroad Vehicle (tons/year)	19	28	**302**	29	5
General Conformity Thresholds (tons/year)	50	100	100	100	100
Potentially Significant (Yes or No)?	No	No	Yes	No	No
Operational Emissions – MCAQMD					
Onroad Vehicle[3] (lbs/day)	18	25	292	30	6
MCAQMD Significance Thresholds (lbs/day)	220	220	550	80	NS
Potentially Significant (Yes or No)?	No	No	No	No	NS

Values in **bold** are in excess of local air district thresholds.
1. Project operational emissions for NSCAPCD were estimated (based on distances to air basin boundaries and assumptions from the trip distribution and the Gamer Visits study) to be 62% of total operational URBEMIS 2007, version 9.2.4 emissions. See **Appendix C** for more information.
2. Project operational emissions for BAAQMD were estimated (based on distances to air basin boundaries and assumptions from the trip distribution and the Gamer Visits study) to be 32% of total operational URBEMIS 2007, version 9.2.4 emissions. See **Appendix C** for more information.
3. Project operational emissions for MCAPCD were estimated (based on distances to air basin boundaries and assumptions from the trip distribution and the Gamer Visits study) to be 6% of total operational URBEMIS 2007, version 9.2.4 emissions. See **Appendix C** for more information.

NS = No Standard for this pollutant

SOURCE: ESA, 2009.

As shown in **Table 4.4-4**, CO emissions exceed General Conformity Thresholds in the BAAQMD. CO measurements and modeling were important in the early 1980's when CO levels were regularly exceeded throughout California. In more recent years, CO measurements and modeling have not been a priority in most California air districts due to the retirement of older polluting vehicles, less emissions from new vehicles and improvements in fuels. The clear success in reducing CO levels is evident in the first paragraph of the executive summary of the California Air Resources Board *2004 Revision to the California State Implementation Plan for Carbon Monoxide Updated Maintenance Plan for Ten Federal Planning Areas*, shown below:

> "The dramatic reduction in carbon monoxide (CO) levels across California is one of the biggest success stories in air pollution control. Air Resources Board (ARB or Board) requirements for cleaner vehicles, equipment and fuels have cut peak CO levels in half since 1980, despite growth. All areas of the State designated as non-attainment for the federal 8-hour CO standard in 1991 now attain the standard, including the Los Angeles urbanized area. Even the Calexico area of Imperial County on the congested Mexican border had no violations of the federal CO standard in 2003. Only the South Coast and Calexico continue to violate the more protective State 8-hour CO standard, with declining levels beginning to approach that standard."

The CALINE 4 dispersion model was used to quantify CO concentrations at sensitive receptors and the model results show that traffic emissions would not contribute to a new or existing violation. A segment of US 101 between Asti Road and the Junction of Route 128 East was used as it was most affected by project-related traffic, it was assumed that if carbon monoxide concentrations at these areas would not exceed the ambient air quality standards, the project's contribution to impacts at other segments would also be less than significant under General Conformity standards.

As shown in **Table 4.4-5**, the analysis demonstrated that no violations of the State or Federal CO standard would occur at the receptor locations near the roadway segments modeled. Project traffic would have a less than significant effect upon CO concentrations in the area, thus, project-related and cumulative traffic would have a less than significant conformity determination.

TABLE 4.4-5
ESTIMATED CARBON MONOXIDE CONCENTRATIONS

		Concentrations (ppm)[a]				
Receptor Location[b]	Averaging Time (hours)	State Standard	Future No Project	Alternative A	Incremental Increase of Alternative A Versus Future No Project	Significant? (Yes or No)
US 101	1	20	1.9	2.0	0.1	No
	8	9	1.3	1.4	0.1	No

a. Concentrations relate to receptor locations at approximately 200 feet from the middle of the roadway. The carbon monoxide analysis focuses on the weekday evening (p.m.) peak-hour because the project's effects on traffic congestion and related carbon monoxide concentrations are greater during that period than the a.m. peak-hour or off-peak periods. Carbon monoxide estimates shown above include background year 2008 concentrations of 1.7 ppm.
b Since these receptors are located along the most affected roadway by project-related traffic, other receptors in the project vicinity would experience lower CO concentrations and the impact would also be less than significant.

SOURCE: ESA 2009

Toxic Air Contaminants

Alternative A would not itself contribute or generate toxic air contaminants. However, diesel bus and truck travel to and from the gaming, facility, especially loading areas, would result in an increased concentration of diesel emissions in those areas, resulting in a potentially significant impact of toxic air contaminants in the area. Application of **Mitigation Measure 5.4-6** and **5.4-7** would reduce effects to less than significant.

Significance after Mitigation: Significant and Unavoidable

Impact 4.4.1-3: Objectionable Odors (Potentially Significant)

The proposed wastewater treatment plant could create an odor impact. The nearest sensitive receptor to the wastewater treatment plant would be located approximately 900 feet across State Highway 101. Sensitive receptors at these distances may be affected by odor if the facility needs maintenance and/or during stagnant meteorological conditions. Based on these conditions, the proposed wastewater treatment plant could affect a substantial number of people. This is a potentially significant impact. **Mitigation Measure 5.4-8** would reduce the significance of this impact to less than significant.

Significance after Mitigation: Less than Significant

Impact 4.4.1-4: Greenhouse Gas Emissions and Global Climate Change (Significant and Unavoidable)

As with other non-industrial projects (i.e., projects that are not cement plants, oil refineries, electric generating facilities/providers, co-generation facilities, hydrogen plants, or other stationary combustion sources that emit more than 25,000 MMT per year CO_2e), the specific emissions from this proposed action would not be expected to individually have an impact on Global Climate Change (Association of Environmental Professionals, 2007). For this evaluation, three considerations will be used to determine whether Alternative A could be in conflict with federal, state, and local goals for reducing greenhouse gas emissions. These considerations were developed from a review of recent publications and actions from CARB that address how the state plans to achieve the goals of reducing greenhouse gases. The considerations are shown directly below and include a review of:

a. The potential conflicts with the CARB 39 recommended actions in the AB32 Scoping Plan;
b. The relative size of the Project in comparison to the estimated greenhouse reduction goal of 174 $MMTCO_2e$ by 2020 and in comparison to the size of major facilities that are required to report greenhouse gas emissions (25,000 metric tons per year of CO_2e); and
c. The basic parameters of a project to determine whether its design is inherently energy efficient.

With regard to Item A, Alternative A would not pose any apparent conflict with the AB 32 Scoping Plan 39 recommended actions (see **Table 3.4-3**).

With regard to Item B, Alternative A construction greenhouse gas emissions would be approximately 1,578 metric tons per year of CO_2e. Area, onroad, and indirect operational emissions are shown below in **Table 4.4-6**. Alternative A would be classified as a major source of greenhouse gas emissions (maximum total operational emissions from operation would be about 192 percent of the lower reporting limit, which is 25,000 metric tons per year of CO_2e). Compared to the overall state reduction goal of approximately 174 million metric tons per year CO_2e, the maximum greenhouse gas emissions for Alternative A would be 52,211 metric tons per year CO_2e or 0.030 percent of the state goal.

With regard to Item C, Alternative A would provide the residents of Cloverdale and the surrounding area a closer and additional source of new employment opportunities in the construction trades and commercial service industry. Area residents would have fewer miles to travel to reach the amenities that will be provided by Alternative A, therefore decreasing emissions caused by longer trips. However, most customers would be driving from far distances to reach these premises.

TABLE 4.4-6
ALTERNATIVE A INDIRECT GHG EMISSIONS FROM ELECTRICITY (METRIC TONS PER YEAR)

Operational Emissions – Alternative A	CO2
Area Source	829
Onroad Vehicle	47,801
Electrical Use	4301
Total	52,211
Percentage of 25,000	209%
Percentage of 174 Million	0.030%
Operational Emissions – Wastewater Treatment Plant	
Electrical Use	446
Percentage of 25,000	1.9%
Percentage of 174 Million	0.0003%

1. Project operational emissions estimates were made using URBEMIS 2007, version 9.2.4. See **Appendix C** more information.

SOURCE: ESA, 2009

The review of Items A through C indicates that Alternative A would not be consistent with the goals of AB32 and would generate substantial amounts of greenhouse gas emissions. **Mitigation Measure 5.4-10** is recommended to reduce the significance of this impact; however, the impact would remain significant even after mitigation.

Significance after Mitigation: Significant and Unavoidable

Impact 4.4.1-5: Climate Change Impacts on Project Site (Potentially Significant).

The Intergovernmental Panel on Climate Change reports that mean sea level will rise by approximately 12 to 36 inches by the year 2100 (IPCC, 2007). However, the project site is located approximately 24 miles from the ocean, and as a result, it is unlikely that erosion or an increase in flooding as a result of climate-induced sea level rise would affect it.

The hydrology of the Russian River does not depend substantially on flows associated with snowmelt. Therefore, the Russian River system is not anticipated to incur significant reductions in water supply availability as a result of reductions in snowpack due to climate change. Climate change could, however, result in increased intensity and/or frequency of major storm events, including those events that could result in flooding. As discussed in **Section 3.3**, a portion of the project site is located within a 100-year flood zone. However, as discussed in **Section 4.3**, sufficient freeboard would be incorporated into project design, or required via mitigation measures, in order to ensure that potential increases in storm intensity due to climate change would not adversely affect the proposed facilities. Therefore, potential impacts associated with climate change would be less than significant, with implementation of **Mitigation Measure 5.3-2**.

Significance after Mitigation: Less than Significant.

Impact 4.4.1-6: Indoor Air Quality Impacts (Potentially Significant)

Environmental tobacco smoke (ETS), also known as second-hand smoke, is a complex mixture of chemicals generated during the burning and smoking of tobacco products to which non-smokers are exposed. On January 26, 2006, CARB identified ETS as a TAC. ETS is now formally identified as an airborne toxic substance that may cause and/or contribute to death or serious illness. Since smoking will be permitted indoors at the casino, patrons of the proposed gaming facility could be exposed to toxics and carcinogens from indoor tobacco use. Although the deleterious effects of ETS are widely known, it is possible that some employees or patrons would be unknowingly exposed to ETS without realizing its harmful effects. Such exposure to ETS from the project would be a potentially significant effect. **Mitigation Measure 5.4-9** would reduce the significance of this impact to less than significant.

Significance after Mitigation: Less than Significant

4.4.2 Alternative B – Reduced Hotel and Casino

Impact 4.4.2-1: Construction Emissions (Potentially Significant)

Similar to Alternative A, construction related emissions would be generated by a variety of activities including: 1) grading, excavation, road building, and other earth moving activities; 2) travel by construction equipment and employee vehicles, especially on unpaved surfaces; 3) exhaust from construction equipment; 4) architectural coatings; and 5) asphalt paving.

PM10 emissions from construction would vary greatly from day to day depending on the level of activity, the equipment being operated, silt content of the soil, and the prevailing weather. Larger-diameter dust particles (i.e., greater than 30 microns) generally fall out of the atmosphere within several hundred feet of construction sites, and represent more of a soiling nuisance than a health hazard. Smaller-diameter particles (e.g., PM10) are associated with adverse health effects and generally remain airborne until removed from the atmosphere by moisture. Therefore, unmitigated construction dust emissions could result in significant local effects.

NOx, ROG, PM10, PM2.5, CO, and CO2 construction emissions were estimated based on default crew, truck trip, and equipment. Emissions are based on criteria pollutant emission factors embedded in the URBEMIS 2007 model. The URBEMIS 2007 results are presented in **Table 4.4-7**. Based on this evaluation, construction emissions would not violate federal standards or NSCAPCD thresholds.

Construction activities would be short-term in duration and the impacts would be localized. On-site construction impacts would not subject to North Coast Air Basin standards. However, fugitive dust may become a nuisance during construction to both on-site and adjacent off-site areas. This is a potentially significant impact. **Mitigation Measure 5.4-1** would reduce impacts associated with dust emissions (PM10) to less than significant. **Mitigation Measures 5.4-2** through **5.4-4** would further reduce impacts associated with construction emissions.

TABLE 4.4-7
ALTERNATIVE B CONSTRUCTION EMISSION ESTIMATES

Unmitigated Annual Operational Emissions (tons/year)	ROG	NOx	CO	PM10	PM2.5
2010 Totals	1	**4**	**3**	**7**	2
2011 Totals	4	**4**	**8**	**<1**	<1
NSCAPCD Significance Thresholds (tons/year)	40	40	100	15	NA
Potentially Significant (Yes or No)?	No	No	No	No	NA

Values in **bold** are in excess of local air district thresholds.
For more details see the AQ appendix.

SOURCE: ESA, 2009.

Toxic Air Contaminants

The greatest potential for TACs emissions would be related to DPM associated with heavy equipment operations during grading and excavation activities. According to AVAQMD methodology,[1] health effects from carcinogenic air toxics are usually described in terms of individual cancer risk. "Individual Cancer Risk" is the likelihood that a person exposed to concentrations of TACs over a 70-year lifetime would contract cancer, based on the use of standard risk-assessment methodology. The project would not result in a long-term (i.e., 70 years) substantial source of TAC emissions. In addition, **Mitigation Measures 5.4-2** through **5.4-4** shall be implemented to reduce DPM during the short-term duration of construction. As such, project-related toxic emission impacts during construction would be less than significant.

Significance after Mitigation: Less than Significant

Impact 4.4.2-2: Operation Emissions (Significant and Unavoidable)

Emissions from both mobile and area sources associated with Alternative B have been estimated using URBEMIS 2007. Traffic estimates are based on the traffic analysis included **Sections 3.8** and **4.8**. Operational emissions (on-road vehicle traffic) were split between three air districts that operational trips would travel through to get to the project site; they are shown below in **Table 4.4-8**. As shown below, operational emissions of CO and PM10 would exceed the established NSCAPCD and BAAQMD thresholds for Alternative B. No operational emissions would exceed MCAQMD thresholds. **Mitigation Measure 5.4-5** is recommended to reduce the significance of this impact; however, the impact would remain significant even after mitigation. Therefore, operation of the project would result in significant and unavoidable impacts to off-site air quality.

[1] AVAQMD CEQA guidelines state that the use of the methodologies as presented in the latest South Coast Air Quality Management District (SCAQMD) CEQA Air Quality Handbook are acceptable. This methodology is from the SCAQMD.

TABLE 4.4-8
ALTERNATIVE B OPERATION EMISSION ESTIMATES

Unmitigated Annual Operational Emissions	ROG	NOx	CO	PM10	PM2.5
Operational Emissions – NSCAPCD					
Onroad Vehicle[1] (tons/year)	25	38	**409**	**39**	7
NSCAPCD Significance Thresholds (tons/year)	40	40	100	15	NS
Potentially Significant (Yes or No)?	No	No	Yes	Yes	NS
Operational Emissions – BAAQMD					
Onroad Vehicle[2] (lbs/day)	66	**93**	**1092**	**110**	21
BAAQMD Significance Thresholds (lbs/day)	80	80	550	80	NS
Potentially Significant (Yes or No)?	No	Yes	Yes	Yes	NS
Onroad Vehicle (tons/year)	13	20	**211**	20	4
General Conformity Thresholds (tons/year)	50	100	100	100	100
Potentially Significant (Yes or No)?	NO	No	Yes	No	No
Operational Emissions – MCAQMD					
Onroad Vehicle[3] (lbs/day)	12	17	205	21	4
MCAQMD Significance Thresholds (lbs/day)	220	220	550	80	NS
Potentially Significant (Yes or No)?	No	No	No	No	NS

Values in **bold** are in excess of local air district thresholds.
1 Project operational emissions for NSCAPCD were estimated (based on distances to air basin boundaries and assumptions from the trip distribution and the Gamer Visits study) to be 62% of total operational URBEMIS 2007, version 9.2.4 emissions. See **Appendix C** for more information.
2 Project operational emissions for BAAQMD were estimated (based on distances to air basin boundaries and assumptions from the trip distribution and the Gamer Visits study) to be 32% of total operational URBEMIS 2007, version 9.2.4 emissions. See **Appendix C** for more information.
3 Project operational emissions for MCAPCD were estimated (based on distances to air basin boundaries and assumptions from the trip distribution and the Gamer Visits study) to be 6% of total operational URBEMIS 2007, version 9.2.4 emissions. See **Appendix C** for more information.
NS = No Standard for this pollutant

SOURCE: ESA, 2009.

As shown in **Table 4.4-8**, CO emissions exceed General Conformity Thresholds in the BAAQMD. CO measurements and modeling were important in the early 1980's when CO levels were regularly exceeded throughout California. In more recent years, CO measurements and modeling have not been a priority in most California air districts due to the retirement of older polluting vehicles, less emissions from new vehicles and improvements in fuels. The clear success in reducing CO levels is evident in the first paragraph of the executive summary of the California Air Resources Board *2004 Revision to the California State Implementation Plan for Carbon Monoxide Updated Maintenance Plan for Ten Federal Planning Areas*, shown below:

> "The dramatic reduction in carbon monoxide (CO) levels across California is one of the biggest success stories in air pollution control. Air Resources Board (ARB or Board) requirements for cleaner vehicles, equipment and fuels have cut peak CO levels in half since 1980, despite growth. All areas of the State designated as non-attainment for the federal 8-hour CO standard in 1991 now attain the standard, including the Los Angeles urbanized area. Even the Calexico area of Imperial County on the congested Mexican border had no violations of the federal CO standard in 2003. Only the South Coast and Calexico continue to violate the more protective State 8-hour CO standard, with declining levels beginning to approach that standard."

The CALINE 4 dispersion model was used to quantify CO concentrations at sensitive receptors and the model results show that traffic emissions would not contribute to a new or existing violation. A segment of US 101 between Asti Road and the Junction of Route 128 East was used as it was most affected by project-related traffic, it was assumed that if carbon monoxide concentrations at these areas would not exceed the ambient air quality standards, the project's contribution to impacts at other segments would also be less than significant under General Conformity standards.

As shown in **Table 4.4-9**, the analysis demonstrated that no violations of the State or Federal CO standard would occur at the receptor locations near the roadway segments modeled. Project traffic would have a less than significant effect upon CO concentrations in the area, thus, project-related and cumulative traffic would have a less than significant conformity determination.

TABLE 4.4-9
ESTIMATED CARBON MONOXIDE CONCENTRATIONS

		Concentrations (ppm)[a]				
Receptor Location[b]	Averaging Time (hours)	State Standard	Future No Project	Alternative B	Incremental Increase of Alternative B Versus Future No Project	Significant? (Yes or No)
US 101	1	20	1.9	2.0	0.1	No
	8	9	1.3	1.4	0.1	No

a Concentrations relate to receptor locations at approximately 200 feet from the middle of the roadway. The carbon monoxide analysis focuses on the weekday evening (p.m.) peak-hour because the project's effects on traffic congestion and related carbon monoxide concentrations are greater during that period than the a.m. peak-hour or off-peak periods. Carbon monoxide estimates shown above include background year 2008 concentrations of 1.7 ppm.
b Since these receptors are located along the most affected roadway by project-related traffic, other receptors in the project vicinity would experience lower CO concentrations and the impact would also be less than significant.

SOURCE: ESA 2009

Toxic Air Contaminants

Alternative B would not itself contribute or generate toxic air contaminants. However, diesel bus and truck travel to and from the gaming, facility, especially loading areas, would result in an increased concentration of diesel emissions in those areas, resulting in a potentially significant impact of toxic air contaminants in the area. Application of **Mitigation Measure 5.4-6** and **5.4-7** would reduce effects to less than significant.

Significance after Mitigation: Significant and Unavoidable.

Impact 4.4.2-3: Objectionable Odors (Potentially Significant)

Similar to Alternative A, the proposed wastewater treatment plant could create an odor impact. The nearest sensitive receptor to the wastewater treatment plant would be located approximately 900 feet across State Highway 101. Sensitive receptors at these distances may be affected by odor if the facility needs maintenance and/or during stagnant meteorological conditions. Based on these conditions, the proposed wastewater treatment plant could affect a substantial number of people.

This is a potentially significant impact. **Mitigation Measure 5.4-8** would reduce the significance of this impact to less than significant.

Significance after Mitigation: Less than Significant

Impact 4.4.2-4: Greenhouse Gas Emissions and Global Climate Change (Significant and Unavoidable)

Similar to Alternative A, Alternative B has the potential to emit greenhouse gases and therefore contribute towards global climate change. With regard to Item A, Alternative B would not pose any apparent conflict with the AB 32 Scoping Plan 39 recommended actions (see **Table 3.4-3**).

With regard to Item B, Alternative B operational greenhouse gas operational emissions are summarized in **Table 4.4-10**.

TABLE 4.4-10
ALTERNATIVE B INDIRECT GHG EMISSIONS FROM ELECTRICITY
(METRIC TONS PER YEAR)

Operational Emissions – Alternative B	CO2
Area Source	541
Onroad Vehicle	32,985
Electrical Use	3,222
Total	36,748
Percentage of 25,000	147%
Percentage of 174 Million	0.021%
Operational Emissions – Wastewater Treatment Plant	
Electrical Use	446
Percentage of 25,000	1.9%
Percentage of 174 Million	0.0003%

1 Project operational emissions estimates were made using URBEMIS 2007, version 9.2.4. See **Appendix C** more information.

SOURCE: ESA, 2009

With regard to Item C, Alternative B would provide the residents of Cloverdale and the surrounding area a closer and additional source of new employment opportunities in the construction trades and commercial service industry. Area residents would have fewer miles to travel to reach the amenities that will be provided by Alternative B, therefore decreasing emissions caused by longer trips. However, most customers would be driving from far distances to reach these premises.

The review of Items A through C indicates that Alternative B would not be consistent with the state goals of AB32 and would generate substantial amounts of greenhouse gas emissions. **Mitigation Measure 5.4-10** is recommended to reduce the significance of this impact; however, the impact would remain significant even after mitigation.

Significance after Mitigation: Significant and Unavoidable

Impact 4.4.2-5: Climate Change Impacts on Project Site (Potentially Significant)

The Intergovernmental Panel on Climate Change reports that mean sea level will rise by approximately 12 to 36 inches by the year 2100 (IPCC, 2007). However, the project site is located approximately 24 miles from the ocean, and as a result, it is unlikely that erosion or an increase in flooding as a result of climate-induced sea level rise would affect it.

The hydrology of the Russian River does not depend substantially on flows associated with snowmelt. Therefore, the Russian River system is not anticipated to incur significant reductions in water supply availability as a result of reductions in snowpack due to climate change. Climate change could, however, result in increased intensity and/or frequency of major storm events, including those events that could result in flooding. As discussed in **Section 3.3**, a portion of the project site is located within a 100-year flood zone. However, as discussed in **Section 4.3**, sufficient freeboard would be incorporated into project design, or required via mitigation measures, in order to ensure that potential increases in storm intensity due to climate change would not adversely affect the proposed facilities. Therefore, potential impacts associated with climate change would be less than significant, with implementation of **Mitigation Measure 5.3-2**.

Significance after Mitigation: Less than Significant.

Impact 4.4.2-6: Indoor Air Quality Impacts (Potentially Significant)

Environmental tobacco smoke (ETS), also known as second-hand smoke, is a complex mixture of chemicals generated during the burning and smoking of tobacco products to which non-smokers are exposed. On January 26, 2006, CARB identified ETS as a TAC. ETS is now formally identified as an airborne toxic substance that may cause and/or contribute to death or serious illness. Since smoking will be permitted indoors at the casino, patrons of the proposed gaming facility could be exposed to toxics and carcinogens from indoor tobacco use. Although the deleterious effects of ETS are widely known, it is possible that some employees or patrons would be unknowingly exposed to ETS without realizing its harmful effects. Such exposure to ETS from the project would be a potentially significant effect. **Mitigation Measure 5.4-9** would reduce the significance of this impact to less than significant.

Significance after Mitigation: Less than Significant

4.4.3 Alternative C – Reduced Casino

Impact 4.4.3-1: Construction Emissions (Potentially Significant)

Similar to Alternative A, construction related emissions would be generated by a variety of activities including: 1) grading, excavation, road building, and other earth moving activities; 2) travel by construction equipment and employee vehicles, especially on unpaved surfaces; 3) exhaust from construction equipment; 4) architectural coatings; and 5) asphalt paving.

PM10 emissions from construction would vary greatly from day to day depending on the level of activity, the equipment being operated, silt content of the soil, and the prevailing weather. Larger-diameter dust particles (i.e., greater than 30 microns) generally fall out of the atmosphere within several hundred feet of construction sites, and represent more of a soiling nuisance than a health hazard. Smaller-diameter particles (e.g., PM10) are associated with adverse health effects and generally remain airborne until removed from the atmosphere by moisture. Therefore, unmitigated construction dust emissions could result in significant local effects.

NOx, ROG, PM10, PM2.5, CO, and CO2 construction emissions were estimated based on default crew, truck trip, and equipment. Emissions are based on criteria pollutant emission factors embedded in the URBEMIS 2007 model. The URBEMIS 2007 results are presented in **Table 4.4-11**. Based on this evaluation, construction emissions would not violate federal standards or NSCAPCD thresholds.

Construction activities would be short-term in duration and the impacts would be localized. On-site construction impacts would not subject to North Coast Air Basin standards. However, fugitive dust may become a nuisance during construction to both on-site and adjacent off-site areas. This is a potentially significant impact. **Mitigation Measure 5.4-1** would reduce impacts associated with dust emissions (PM10) to less than significant. **Mitigation Measures 5.4-2** through **5.4-4** would further reduce impacts associated with construction emissions.

TABLE 4.4-11
ALTERNATIVE C CONSTRUCTION EMISSION ESTIMATES

Unmitigated Annual Operational Emissions (tons/year)	ROG	NOx	CO	PM10	PM2.5
2010 Totals	1	**4**	**3**	**6**	1
2011 Totals	3	**3**	**8**	**<1**	<1
NSCAPCD Significance Thresholds (tons/year)	40	40	100	15	NA
Potentially Significant (Yes or No)?	No	No	No	No	NA

Values in **bold** are in excess of local air district thresholds.
For more details see the AQ appendix.

SOURCE: ESA, 2009.

Toxic Air Contaminants

The greatest potential for TACs emissions would be related to DPM associated with heavy equipment operations during grading and excavation activities. According to AVAQMD methodology,[2] health effects from carcinogenic air toxics are usually described in terms of individual cancer risk. "Individual Cancer Risk" is the likelihood that a person exposed to concentrations of TACs over a 70-year lifetime would contract cancer, based on the use of standard risk-assessment methodology. The project would not result in a long-term (i.e., 70 years) substantial source of TAC emissions. In addition, **Mitigation Measures 5.4-2** through **5.4-4** shall be implemented to reduce DPM during the short-term duration of construction. As such, project-related toxic emission impacts during construction would be less than significant.

Significance after Mitigation: Less than Significant

Impact 4.4.3-2: Operation Emissions (Significant and Unavoidable)

Emissions from both mobile and area sources associated with Alternative C have been estimated using URBEMIS 2007. Traffic estimates are based on the traffic analysis included **Sections 3.8** and **4.8**. Operational emissions (on-road vehicle traffic) were split between three air districts that operational trips would travel through to get to the project site; they are shown below in **Table 4.4-12**. As shown below, operational emissions of CO and PM10 would exceed the established NSCAPCD and BAAQMD thresholds for Alternative C. No operational emissions would exceed MCAQMD thresholds. **Mitigation Measure 5.4-5** is recommended to reduce the significance of this impact; however, the impact would remain significant even after mitigation. Therefore, operation of the project would result in significant and unavoidable impacts to off-site air quality.

TABLE 4.4-12
ALTERNATIVE C OPERATION EMISSION ESTIMATES

Unmitigated Annual Operational Emissions	ROG	NOx	CO	PM10	PM2.5
Operational Emissions – NSCAPCD					
Onroad Vehicle[1] (tons/year)	23	35	**1948**	**197**	37
NSCAPCD Significance Thresholds (tons/year)	40	40	100	15	NS
Potentially Significant (Yes or No)?	No	No	Yes	Yes	NS
Operational Emissions – BAAQMD					
Onroad Vehicle[2] (lbs/day)	61	**85**	**1005**	**101**	19
BAAQMD Significance Thresholds (lbs/day)	80	80	550	80	NS
Potentially Significant (Yes or No)?	No	Yes	Yes	Yes	NS
Onroad Vehicle (tons/year)	12	18	**194**	19	4
General Conformity Thresholds (tons/year)	50	100	100	100	100
Potentially Significant (Yes or No)?	NO	No	Yes	No	No

2 AVAQMD CEQA guidelines state that the use of the methodologies as presented in the latest South Coast Air Quality Management District (SCAQMD) CEQA Air Quality Handbook are acceptable. This methodology is from the SCAQMD.

TABLE 4.4-12
ALTERNATIVE C OPERATION EMISSION ESTIMATES

Unmitigated Annual Operational Emissions	ROG	NOx	CO	PM10	PM2.5
Operational Emissions – MCAQMD					
Onroad Vehicle[3] (lbs/day)	11	16	189	19	4
MCAQMD Significance Thresholds (lbs/day)	220	220	550	80	NS
Potentially Significant (Yes or No)?	No	No	No	No	NS

Values in **bold** are in excess of local air district thresholds.
1 Project operational emissions for NSCAPCD were estimated (based on distances to air basin boundaries and assumptions from the trip distribution and the Gamer Visits study) to be 62% of total operational URBEMIS 2007, version 9.2.4 emissions. See **Appendix C** for more information.
2 Project operational emissions for BAAQMD were estimated (based on distances to air basin boundaries and assumptions from the trip distribution and the Gamer Visits study) to be 32% of total operational URBEMIS 2007, version 9.2.4 emissions. See **Appendix C** for more information.
3 Project operational emissions for MCAPCD were estimated (based on distances to air basin boundaries and assumptions from the trip distribution and the Gamer Visits study) to be 6% of total operational URBEMIS 2007, version 9.2.4 emissions. See **Appendix C** for more information.
NS = No Standard for this pollutant

SOURCE: ESA, 2009.

As shown in **Table 4.4-12**, CO emissions exceed General Conformity Thresholds in the BAAQMD. CO measurements and modeling were important in the early 1980's when CO levels were regularly exceeded throughout California. In more recent years, CO measurements and modeling have not been a priority in most California air districts due to the retirement of older polluting vehicles, less emissions from new vehicles and improvements in fuels. The clear success in reducing CO levels is evident in the first paragraph of the executive summary of the California Air Resources Board *2004 Revision to the California State Implementation Plan for Carbon Monoxide Updated Maintenance Plan for Ten Federal Planning Areas*, shown below:

> "The dramatic reduction in carbon monoxide (CO) levels across California is one of the biggest success stories in air pollution control. Air Resources Board (ARB or Board) requirements for cleaner vehicles, equipment and fuels have cut peak CO levels in half since 1980, despite growth. All areas of the State designated as non-attainment for the federal 8-hour CO standard in 1991 now attain the standard, including the Los Angeles urbanized area. Even the Calexico area of Imperial County on the congested Mexican border had no violations of the federal CO standard in 2003. Only the South Coast and Calexico continue to violate the more protective State 8-hour CO standard, with declining levels beginning to approach that standard."

The CALINE 4 dispersion model was used to quantify CO concentrations at sensitive receptors and the model results show that traffic emissions would not contribute to a new or existing violation. A segment of US 101 between Asti Road and the Junction of Route 128 East was used as it was most affected by project-related traffic, it was assumed that if carbon monoxide concentrations at these areas would not exceed the ambient air quality standards, the project's contribution to impacts at other segments would also be less than significant under General Conformity standards.

As shown in **Table 4.4-13**, the analysis demonstrated that no violations of the State or Federal CO standard would occur at the receptor locations near the roadway segments modeled. Project

traffic would have a less than significant effect upon CO concentrations in the area, thus, project-related and cumulative traffic would have a less than significant conformity determination.

TABLE 4.4-13
ESTIMATED CARBON MONOXIDE CONCENTRATIONS

Receptor Location[b]	Averaging Time (hours)	Concentrations (ppm)[a] State Standard	Future No Project	Alternative C	Incremental Increase of Alternative C Versus Future No Project	Significant? (Yes or No)
US 101	1	20	1.9	1.9	0	No
	8	9	1.3	1.3	0	No

a Concentrations relate to receptor locations at approximately 200 feet from the middle of the roadway. The carbon monoxide analysis focuses on the weekday evening (p.m.) peak-hour because the project's effects on traffic congestion and related carbon monoxide concentrations are greater during that period than the a.m. peak-hour or off-peak periods. Carbon monoxide estimates shown above include background year 2008 concentrations of 1.7 ppm.

b Since these receptors are located along the most affected roadway by project-related traffic, other receptors in the project vicinity would experience lower CO concentrations and the impact would also be less than significant.

SOURCE: ESA 2009

Toxic Air Contaminants

Alternative C would not itself contribute or generate toxic air contaminants. However, diesel bus and truck travel to and from the gaming, facility, especially loading areas, would result in an increased concentration of diesel emissions in those areas, resulting in a potentially significant impact of toxic air contaminants in the area. Application of **Mitigation Measures 5.4-6** and **5.4-7** would reduce effects to less than significant.

Significance after Mitigation: Significant and Unavoidable.

Impact 4.4.3-3: Objectionable Odors (Potentially Significant)

Similar to Alternative A, the proposed wastewater treatment plant could create an odor impact. The nearest sensitive receptor to the wastewater treatment plant would be located approximately 900 feet across State Highway 101. Sensitive receptors at these distances may be affected by odor if the facility needs maintenance and/or during stagnant meteorological conditions. Based on these conditions, the proposed wastewater treatment plant could affect a substantial number of people. This is a potentially significant impact. **Mitigation Measure 5.4-8** would reduce the significance of this impact to less than significant.

Significance after Mitigation: Less than Significant

Impact 4.4.3-4: Greenhouse Gas Emissions and Global Climate Change (Significant and Unavoidable)

Similar to Alternative A, Alternative C has the potential to emit greenhouse gases and therefore contribute towards global climate change. With regard to Item A, Alternative C would not pose any apparent conflict with the AB 32 Scoping Plan 39 recommended actions (see **Table 3.4-3**).

With regard to Item B, Alternative C operational greenhouse gas operational emissions are summarized in **Table 4.4-14**.

With regard to Item C, Alternative C would provide the residents of Cloverdale and the surrounding area a closer and additional source of new employment opportunities in the construction trades and commercial service industry. Area residents would have fewer miles to travel to reach the amenities that will be provided by Alternative C, therefore decreasing emissions caused by longer trips. However, most customers would be driving from far distances to reach these premises.

The review of Items A through C indicates that Alternative C would not be consistent with the state goals of AB32 and would generate substantial amounts of greenhouse gas emissions. **Mitigation Measure 5.4-10** is recommended to reduce the significance of this impact; however, the impact would remain significant even after mitigation.

TABLE 4.4-14
ALTERNATIVE C INDIRECT GHG EMISSIONS FROM ELECTRICITY (METRIC TONS PER YEAR)

Operational Emissions – Alternative C	**CO2**
Area Source	515
Onroad Vehicle	30,370
Electrical Use	3,043
Total	33,928
Percentage of 25,000	136%
Percentage of 174 Million	0.019%
Operational Emissions – Wastewater Treatment Plant	
Electrical Use	446
Percentage of 25,000	1.9%
Percentage of 174 Million	0.0003%

1 Project operational emissions estimates were made using URBEMIS 2007, version 9.2.4. See **Appendix C** more information.

SOURCE: ESA, 2009

Significance after Mitigation: Significant and Unavoidable

Impact 4.4.3-5: Climate Change Impacts on Project Site (Potentially Significant)

The Intergovernmental Panel on Climate Change reports that mean sea level will rise by approximately 12 to 36 inches by the year 2100 (IPCC, 2007). However, the project site is located approximately 24 miles from the ocean, and as a result, it is unlikely that erosion or an increase in flooding as a result of climate-induced sea level rise would affect it.

The hydrology of the Russian River does not depend substantially on flows associated with snowmelt. Therefore, the Russian River system is not anticipated to incur significant reductions in water supply availability as a result of reductions in snowpack due to climate change. Climate change could, however, result in increased intensity and/or frequency of major storm events, including those events that could result in flooding. As discussed in **Section 3.3**, a portion of the project site is located within a 100-year flood zone. However, as discussed in **Section 4.3**, sufficient freeboard would be incorporated into project design, or required via mitigation measures, in order to ensure that potential increases in storm intensity due to climate change would not adversely affect the proposed facilities. Therefore, potential impacts associated with climate change would be less than significant, with implementation of **Mitigation Measure 5.3-2**.

Significance after Mitigation: Less than Significant.

Impact 4.4.3-6: Indoor Air Quality Impacts (Potentially Significant)

Environmental tobacco smoke (ETS), also known as second-hand smoke, is a complex mixture of chemicals generated during the burning and smoking of tobacco products to which non-smokers are exposed. On January 26, 2006, CARB identified ETS as a TAC. ETS is now formally identified as an airborne toxic substance that may cause and/or contribute to death or serious illness. Since smoking will be permitted indoors at the casino, patrons of the proposed gaming facility could be exposed to toxics and carcinogens from indoor tobacco use. Although the deleterious effects of ETS are widely known, it is possible that some employees or patrons would be unknowingly exposed to ETS without realizing its harmful effects. Such exposure to ETS from the project would be a potentially significant effect. **Mitigation Measure 5.4-9** would reduce the significance of this impact to less than significant.

Significance after Mitigation: Less than Significant

4.4.4 Alternative D – Casino Only

Impact 4.4.4-1: Construction Emissions (Potentially Significant)

Similar to Alternative A, construction related emissions would be generated by a variety of activities including: 1) grading, excavation, road building, and other earth moving activities; 2) travel by construction equipment and employee vehicles, especially on unpaved surfaces; 3) exhaust from construction equipment; 4) architectural coatings; and 5) asphalt paving.

PM10 emissions from construction would vary greatly from day to day depending on the level of activity, the equipment being operated, silt content of the soil, and the prevailing weather. Larger-diameter dust particles (i.e., greater than 30 microns) generally fall out of the atmosphere within several hundred feet of construction sites, and represent more of a soiling nuisance than a health hazard. Smaller-diameter particles (e.g., PM10) are associated with adverse health effects and generally remain airborne until removed from the atmosphere by moisture. Therefore, unmitigated construction dust emissions could result in significant local effects.

NOx, ROG, PM10, PM2.5, CO, and CO2 construction emissions were estimated based on default crew, truck trip, and equipment. Emissions are based on criteria pollutant emission factors embedded in the URBEMIS 2007 model. The URBEMIS 2007 results are presented in **Table 4.4-15**. Based on this evaluation, construction emissions would not violate federal standards or NSCAPCD thresholds.

Construction activities would be short-term in duration and the impacts would be localized. On-site construction impacts would not subject to North Coast Air Basin standards. However, fugitive dust may become a nuisance during construction to both on-site and adjacent off-site areas. This is a potentially significant impact. **Mitigation Measure 5.4-1** would reduce impacts associated with dust emissions (PM10) to less than significant. **Mitigation Measures 5.4-2** through **5.4-4** would further reduce impacts associated with construction emissions.

TABLE 4.4-15
ALTERNATIVE D CONSTRUCTION EMISSION ESTIMATES

Unmitigated Annual Operational Emissions (tons/year)	ROG	NOx	CO	PM10	PM2.5
2010 Totals	1	**3**	**3**	**3**	1
2011 Totals	2	**1**	**2**	**<1**	<1
NSCAPCD Significance Thresholds (tons/year)	40	40	100	15	NA
Potentially Significant (Yes or No)?	No	No	No	No	NA

Values in **bold** are in excess of local air district thresholds.
For more details see the AQ appendix.

SOURCE: ESA, 2009.

Toxic Air Contaminants

The greatest potential for TACs emissions would be related to DPM associated with heavy equipment operations during grading and excavation activities. According to AVAQMD methodology,[3] health effects from carcinogenic air toxics are usually described in terms of individual cancer risk. "Individual Cancer Risk" is the likelihood that a person exposed to concentrations of TACs over a 70-year lifetime would contract cancer, based on the use of standard risk-assessment methodology. The project would not result in a long-term (i.e., 70 years) substantial source of TAC emissions. In addition, **Mitigation Measures 5.4-2** through **5.4-4** shall be implemented to reduce DPM during

[3] AVAQMD CEQA guidelines state that the use of the methodologies as presented in the latest South Coast Air Quality Management District (SCAQMD) CEQA Air Quality Handbook are acceptable. This methodology is from the SCAQMD.

the short-term duration of construction. As such, project-related toxic emission impacts during construction would be less than significant.

Significance after Mitigation: Less than Significant

Impact 4.4.4-2: Operation Emissions (Significant and Unavoidable)

Emissions from both mobile and area sources associated with Alternative D have been estimated using URBEMIS 2007. Traffic estimates are based on the traffic analysis included **Sections 3.8** and **4.8**. Operational emissions (on-road vehicle traffic) were split between three air districts that operational trips would travel through to get to the project site; they are shown below in **Table 4.4-16**. As shown below, operational emissions of NOx, CO, and PM10 would exceed the established NSCAPCD and BAAQMD thresholds for Alternative D. No operational emissions would exceed MCAQMD thresholds. **Mitigation Measure 5.4-5** is recommended to reduce the significance of this impact; however, the impact would remain significant even after mitigation. Therefore, operation of the project would result in significant and unavoidable impacts to off-site air quality.

TABLE 4.4-16
ALTERNATIVE D OPERATION EMISSION ESTIMATES

Unmitigated Annual Operational Emissions	ROG	NOx	CO	PM10	PM2.5
Operational Emissions – NSCAPCD					
Onroad Vehicle[1] (tons/year)	31	47	**498**	**48**	9
NSCAPCD Significance Thresholds (tons/year)	40	40	100	15	NS
Potentially Significant (Yes or No)?	No	Yes	Yes	Yes	NS
Operational Emissions – BAAQMD					
Onroad Vehicle[2] (lbs/day)	79	113	**1331**	**134**	26
BAAQMD Significance Thresholds (lbs/day)	80	80	550	80	NS
Potentially Significant (Yes or No)?	No	Yes	Yes	Yes	NS
Onroad Vehicle (tons/year)	16	24	**257**	25	5
General Conformity Thresholds (tons/year)	50	100	100	100	100
Potentially Significant (Yes or No)?	NO	No	Yes	No	No
Operational Emissions – MCAQMD					
Onroad Vehicle[3] (lbs/day)	15	21	250	25	5
MCAQMD Significance Thresholds (lbs/day)	220	220	550	80	NS
Potentially Significant (Yes or No)?	No	No	No	No	NS

Values in bold are in excess of local air district thresholds.
1 Project operational emissions for NSCAPCD were estimated (based on distances to air basin boundaries and assumptions from the trip distribution and the Gamer Visits study) to be 62% of total operational URBEMIS 2007, version 9.2.4 emissions. See Appendix C for more information.
2 Project operational emissions for BAAQMD were estimated (based on distances to air basin boundaries and assumptions from the trip distribution and the Gamer Visits study) to be 32% of total operational URBEMIS 2007, version 9.2.4 emissions. See Appendix C for more information.
3 Project operational emissions for MCAPCD were estimated (based on distances to air basin boundaries and assumptions from the trip distribution and the Gamer Visits study) to be 6% of total operational URBEMIS 2007, version 9.2.4 emissions. See Appendix C for more information.
NS = No Standard for this pollutant

SOURCE: ESA, 2009.

As shown in **Table 4.4-16**, CO emissions exceed General Conformity Thresholds in the BAAQMD. CO measurements and modeling were important in the early 1980's when CO levels were regularly exceeded throughout California. In more recent years, CO measurements and modeling have not been a priority in most California air districts due to the retirement of older polluting vehicles, less emissions from new vehicles and improvements in fuels. The clear success in reducing CO levels is evident in the first paragraph of the executive summary of the California Air Resources Board *2004 Revision to the California State Implementation Plan for Carbon Monoxide Updated Maintenance Plan for Ten Federal Planning Areas*, shown below:

> "The dramatic reduction in carbon monoxide (CO) levels across California is one of the biggest success stories in air pollution control. Air Resources Board (ARB or Board) requirements for cleaner vehicles, equipment and fuels have cut peak CO levels in half since 1980, despite growth. All areas of the State designated as non-attainment for the federal 8-hour CO standard in 1991 now attain the standard, including the Los Angeles urbanized area. Even the Calexico area of Imperial County on the congested Mexican border had no violations of the federal CO standard in 2003. Only the South Coast and Calexico continue to violate the more protective State 8-hour CO standard, with declining levels beginning to approach that standard."

The CALINE 4 dispersion model was used to quantify CO concentrations at sensitive receptors and the model results show that traffic emissions would not contribute to a new or existing violation. A segment of US 101 between Asti Road and the Junction of Route 128 East was used as it was most affected by project-related traffic, it was assumed that if carbon monoxide concentrations at these areas would not exceed the ambient air quality standards, the project's contribution to impacts at other segments would also be less than significant under General Conformity standards.

As shown in **Table 4.4-17**, the analysis demonstrated that no violations of the State or Federal CO standard would occur at the receptor locations near the roadway segments modeled. Project traffic would have a less than significant effect upon CO concentrations in the area, thus, project-related and cumulative traffic would have a less than significant conformity determination.

TABLE 4.4-17
ESTIMATED CARBON MONOXIDE CONCENTRATIONS

		Concentrations (ppm)[a]				
Receptor Location[b]	**Averaging Time (hours)**	**State Standard**	**Future No Project**	**Alternative D**	**Incremental Increase of Alternative D Versus Future No Project**	**Significant? (Yes or No)**
US 101	1	20	1.9	1.9	0	No
	8	9	1.3	1.3	0	No

a Concentrations relate to receptor locations at approximately 200 feet from the middle of the roadway. The carbon monoxide analysis focuses on the weekday evening (p.m.) peak-hour because the project's effects on traffic congestion and related carbon monoxide concentrations are greater during that period than the a.m. peak-hour or off-peak periods. Carbon monoxide estimates shown above include background year 2008 concentrations of 1.7 ppm.

b Since these receptors are located along the most affected roadway by project-related traffic, other receptors in the project vicinity would experience lower CO concentrations and the impact would also be less than significant.

SOURCE: ESA 2009

Toxic Air Contaminants

Alternative D would not itself contribute or generate toxic air contaminants. However, diesel bus and truck travel to and from the gaming, facility, especially loading areas, would result in an increased concentration of diesel emissions in those areas, resulting in a potentially significant impact of toxic air contaminants in the area. Application of **Mitigation Measure 5.4-6** and **5,4-7** would reduce effects to less than significant.

Significance after Mitigation: Significant and Unavoidable.

Impact 4.4.4-3: Objectionable Odors (Potentially Significant)

Similar to Alternative A, the proposed wastewater treatment plant could create an odor impact. The nearest sensitive receptor to the wastewater treatment plant would be located approximately 900 feet across State Highway 101. Sensitive receptors at these distances may be affected by odor if the facility needs maintenance and/or during stagnant meteorological conditions. Based on these conditions, the proposed wastewater treatment plant could affect a substantial number of people. This is a potentially significant impact. **Mitigation Measure 5.4-8** would reduce the significance of this impact to less than significant.

Significance after Mitigation: Less than Significant

Impact 4.4.4-4: Greenhouse Gas Emissions and Global Climate Change (Significant and Unavoidable)

Similar to Alternative A, Alternative D has the potential to emit greenhouse gases and therefore contribute towards global climate change. With regard to Item A, Alternative D would not pose any apparent conflict with the AB 32 Scoping Plan 39 recommended actions (see **Table 3.4-3**).

With regard to Item B, Alternative D operational greenhouse gas emissions are summarized in **Table 4.4-18**.

TABLE 4.4-18
ALTERNATIVE D INDIRECT GHG EMISSIONS FROM ELECTRICITY
(METRIC TONS PER YEAR)

Operational Emissions – Alternative D	CO2
Area Source	247
Onroad Vehicle	40,198
Electrical Use	1,862
Total	42,307
Percentage of 25,000	169%
Percentage of 174 Million	0.024%

TABLE 4.4-18
ALTERNATIVE D INDIRECT GHG EMISSIONS FROM ELECTRICITY
(METRIC TONS PER YEAR)

Operational Emissions – Alternative D	CO2
Operational Emissions – Wastewater Treatment Plant	
Electrical Use	446
Percentage of 25,000	1.9%
Percentage of 174 Million	0.0003%

1 Project operational emissions estimates were made using URBEMIS 2007, version 9.2.4. See Appendix C more information.

SOURCE: ESA, 2009

With regard to Item C, Alternative D would provide the residents of Cloverdale and the surrounding area a closer and additional source of new employment opportunities in the construction trades and commercial service industry. Area residents would have fewer miles to travel to reach the amenities that will be provided by Alternative D, therefore decreasing emissions caused by longer trips. However, most customers would be driving from far distances to reach these premises.

The review of Items A through C indicates that Alternative D would not be consistent with the state goals of AB32 and would generate substantial amounts of greenhouse gas emissions. **Mitigation Measure 5.4-10** is recommended to reduce the significance of this impact; however, the impact would remain significant even after mitigation.

Significance after Mitigation: Significant and Unavoidable

Impact 4.4.4-5: Climate Change Impacts on Project Site (Potentially Significant)

The Intergovernmental Panel on Climate Change reports that mean sea level will rise by approximately 12 to 36 inches by the year 2100 (IPCC, 2007). However, the project site is located approximately 24 miles from the ocean, and as a result, it is unlikely that erosion or an increase in flooding as a result of climate-induced sea level rise would affect it. The hydrology of the Russian River does not depend substantially on flows associated with snowmelt. Therefore, the Russian River system is not anticipated to incur significant reductions in water supply availability as a result of reductions in snowpack due to climate change. Climate change could, however, result in increased intensity and/or frequency of major storm events, including those events that could result in flooding. As discussed in **Section 3.3**, a portion of the project site is located within a 100-year flood zone. However, as discussed in **Section 4.3**, sufficient freeboard would be incorporated into project design, or required via mitigation measures, in order to ensure that potential increases in storm intensity due to climate change would not adversely affect the proposed facilities. Therefore, potential impacts associated with climate change would be less than significant, with implementation of **Mitigation Measure 5.3-2**.

Significance after Mitigation: Less than Significant.

Impact 4.4.4-6: Indoor Air Quality Impacts (Potentially Significant)

Environmental tobacco smoke (ETS), also known as second-hand smoke, is a complex mixture of chemicals generated during the burning and smoking of tobacco products to which non-smokers are exposed. On January 26, 2006, CARB identified ETS as a TAC. ETS is now formally identified as an airborne toxic substance that may cause and/or contribute to death or serious illness. Since smoking will be permitted indoors at the casino, patrons of the proposed gaming facility could be exposed to toxics and carcinogens from indoor tobacco use. Although the deleterious effects of ETS are widely known, it is possible that some employees or patrons would be unknowingly exposed to ETS without realizing its harmful effects. Such exposure to ETS from the project would be a potentially significant effect. **Mitigation Measure 5.4-9** would reduce the significance of this impact to less than significant.

Significance after Mitigation: Less than Significant

4.4.5 Alternative E – Commercial Retail-Office Space

Impact 4.4.5-1: Construction Emissions (Potentially Significant)

Similar to Alternative A, construction related emissions would be generated by a variety of activities including: 1) grading, excavation, road building, and other earth moving activities; 2) travel by construction equipment and employee vehicles, especially on unpaved surfaces; 3) exhaust from construction equipment; 4) architectural coatings; and 5) asphalt paving.

PM10 emissions from construction would vary greatly from day to day depending on the level of activity, the equipment being operated, silt content of the soil, and the prevailing weather. Larger-diameter dust particles (i.e., greater than 30 microns) generally fall out of the atmosphere within several hundred feet of construction sites, and represent more of a soiling nuisance than a health hazard. Smaller-diameter particles (e.g., PM10) are associated with adverse health effects and generally remain airborne until removed from the atmosphere by moisture. Therefore, unmitigated construction dust emissions could result in significant local effects.

NOx, ROG, PM10, PM2.5, CO, and CO2 construction emissions were estimated based on default crew, truck trip, and equipment. Emissions are based on criteria pollutant emission factors embedded in the URBEMIS 2007 model. The URBEMIS 2007 results are presented in **Table 4.4-19**. Based on this evaluation, construction emissions would not violate federal standards or NSCAPCD thresholds.

Construction activities would be short-term in duration and the impacts would be localized. On-site construction impacts would not subject to North Coast Air Basin standards. However, fugitive dust may become a nuisance during construction to both on-site and adjacent off-site areas. This is a potentially significant impact. **Mitigation Measure 5.4-1** would reduce impacts associated with dust emissions (PM10) to less than significant. **Mitigation Measures 5.4-2** through **5.4-4** would further reduce impacts associated with construction emissions.

TABLE 4.4-19
ALTERNATIVE E CONSTRUCTION EMISSION ESTIMATES

Unmitigated Annual Operational Emissions (tons/year)	ROG	NOx	CO	PM10	PM2.5
2010 Totals	2	**4**	**4**	**6**	1
2011 Totals	3	**4**	**5**	**<1**	<1
NSCAPCD Significance Thresholds (tons/year)	40	40	100	15	NA
Potentially Significant (Yes or No)?	No	No	No	No	NA

Values in bold are in excess of local air district thresholds.
For more details see the AQ appendix.

SOURCE: ESA, 2009.

Toxic Air Contaminants

The greatest potential for TACs emissions would be related to DPM associated with heavy equipment operations during grading and excavation activities. According to AVAQMD methodology,[4] health effects from carcinogenic air toxics are usually described in terms of individual cancer risk. "Individual Cancer Risk" is the likelihood that a person exposed to concentrations of TACs over a 70-year lifetime would contract cancer, based on the use of standard risk-assessment methodology. The project would not result in a long-term (i.e., 70 years) substantial source of TAC emissions. In addition, **Mitigation Measures 5.4-2** through **5.4-4** shall be implemented to reduce DPM during the short-term duration of construction. As such, project-related toxic emission impacts during construction would be less than significant.

Significance after Mitigation: Less than Significant

Impact 4.4.5-2: Operation Emissions (Significant and Unavoidable)

Emissions from both mobile and area sources associated with Alternative E have been estimated using URBEMIS 2007. Traffic estimates are based on the traffic analysis included **Sections 3.8** and **4.8**. Operational emissions (on-road vehicle traffic) were split between three air districts that operational trips would travel through to get to the project site; they are shown below in **Table 4.4-20**. As shown below, operational emissions of NOx, CO, and PM10 would exceed the established NSCAPCD and BAAQMD thresholds for Alternative E. No operational emissions would exceed MCAQMD thresholds. **Mitigation Measure 5.4-5** is recommended to reduce the significance of this impact; however, the impact would remain significant even after mitigation. Therefore, operation of the project would result in significant and unavoidable impacts to off-site air quality.

[4] AVAQMD CEQA guidelines state that the use of the methodologies as presented in the latest South Coast Air Quality Management District (SCAQMD) CEQA Air Quality Handbook are acceptable. This methodology is from the SCAQMD.

TABLE 4.4-20
ALTERNATIVE E OPERATION EMISSION ESTIMATES

Unmitigated Annual Operational Emissions	ROG	NOx	CO	PM10	PM2.5
Operational Emissions – NSCAPCD					
Onroad Vehicle[1] (tons/year)	32	**48**	**513**	**49**	9
NSCAPCD Significance Thresholds (tons/year)	40	40	100	15	NS
Potentially Significant (Yes or No)?	No	Yes	Yes	Yes	NS
Operational Emissions – BAAQMD					
Onroad Vehicle[2] (lbs/day)	**82**	**116**	**1371**	**138**	26
BAAQMD Significance Thresholds (lbs/day)	80	80	550	80	NS
Potentially Significant (Yes or No)?	Yes	Yes	Yes	Yes	NS
Onroad Vehicle (tons/year)	16	25	**265**	25	5
General Conformity Thresholds (tons/year)	50	100	100	100	100
Potentially Significant (Yes or No)?	NO	No	Yes	No	No
Operational Emissions – MCAQMD					
Onroad Vehicle[3] (lbs/day)	15	22	257	26	5
MCAQMD Significance Thresholds (lbs/day)	220	220	550	80	NS
Potentially Significant (Yes or No)?	No	No	No	No	NS

Values in bold are in excess of local air district thresholds.
1 Project operational emissions for NSCAPCD were estimated (based on distances to air basin boundaries and assumptions from the trip distribution and the Gamer Visits study) to be 62% of total operational URBEMIS 2007, version 9.2.4 emissions. See Appendix C for more information.
2 Project operational emissions for BAAQMD were estimated (based on distances to air basin boundaries and assumptions from the trip distribution and the Gamer Visits study) to be 32% of total operational URBEMIS 2007, version 9.2.4 emissions. See Appendix C for more information.
3 Project operational emissions for MCAPCD were estimated (based on distances to air basin boundaries and assumptions from the trip distribution and the Gamer Visits study) to be 6% of total operational URBEMIS 2007, version 9.2.4 emissions. See Appendix C for more information.
NS = No Standard for this pollutant

SOURCE: ESA, 2009.

As shown in **Table 4.4-20** CO emissions exceed General Conformity Thresholds in the BAAQMD. CO measurements and modeling were important in the early 1980's when CO levels were regularly exceeded throughout California. In more recent years, CO measurements and modeling have not been a priority in most California air districts due to the retirement of older polluting vehicles, less emissions from new vehicles and improvements in fuels. The clear success in reducing CO levels is evident in the first paragraph of the executive summary of the California Air Resources Board *2004 Revision to the California State Implementation Plan for Carbon Monoxide Updated Maintenance Plan for Ten Federal Planning Areas*, shown below:

> "The dramatic reduction in carbon monoxide (CO) levels across California is one of the biggest success stories in air pollution control. Air Resources Board (ARB or Board) requirements for cleaner vehicles, equipment and fuels have cut peak CO levels in half since 1980, despite growth. All areas of the State designated as non-attainment for the federal 8-hour CO standard in 1991 now attain the standard, including the Los Angeles urbanized area. Even the Calexico area of Imperial County on the congested Mexican border had no violations of the federal CO standard in 2003. Only the South Coast and Calexico continue to violate the more protective State 8-hour CO standard, with declining levels beginning to approach that standard."

The CALINE 4 dispersion model was used to quantify CO concentrations at sensitive receptors and the model results show that traffic emissions would not contribute to a new or existing violation. A segment of US 101 between Asti Road and the Junction of Route 128 East was used as it was most affected by project-related traffic, it was assumed that if carbon monoxide concentrations at these areas would not exceed the ambient air quality standards, the project's contribution to impacts at other segments would also be less than significant under General Conformity standards.

As shown in **Table 4.4-21**, the analysis demonstrated that no violations of the State or Federal CO standard would occur at the receptor locations near the roadway segments modeled. Project traffic would have a less than significant effect upon CO concentrations in the area, thus, project-related and cumulative traffic would have a less than significant conformity determination.

TABLE 4.4-21
ESTIMATED CARBON MONOXIDE CONCENTRATIONS

		Concentrations (ppm)[a]				
Receptor Location[b]	Averaging Time (hours)	State Standard	Future No Project	Alternative E	Incremental Increase of Alternative E Versus Future No Project	Significant? (Yes or No)
US 101	1	20	1.9	1.9	0	No
	8	9	1.3	1.3	0	No

a Concentrations relate to receptor locations at approximately 200 feet from the middle of the roadway. The carbon monoxide analysis focuses on the weekday evening (p.m.) peak-hour because the project's effects on traffic congestion and related carbon monoxide concentrations are greater during that period than the a.m. peak-hour or off-peak periods. Carbon monoxide estimates shown above include background year 2008 concentrations of 1.7 ppm.
b Since these receptors are located along the most affected roadway by project-related traffic, other receptors in the project vicinity would experience lower CO concentrations and the impact would also be less than significant.

SOURCE: ESA 2009

Toxic Air Contaminants

Alternative E would not itself contribute or generate toxic air contaminants. However, diesel truck travel to and from loading docks, would result in an increased concentration of diesel emissions in those areas, resulting in a potentially significant impact of toxic air contaminants in the area. Application of **Mitigation Measure 5.4-6** and **5.4-7** would reduce effects to less than significant.

Significance After Mitigation: Significant and Unavoidable.

Impact 4.4.3-3: Objectionable Odors (Potentially Significant)

Similar to Alternative A, the proposed wastewater treatment plant could create an odor impact. The nearest sensitive receptor to the wastewater treatment plant would be located approximately 900 feet across State Highway 101. Sensitive receptors at these distances may be affected by odor if the facility needs maintenance and/or during stagnant meteorological conditions. Based on these conditions, the proposed wastewater treatment plant could affect a substantial number of people.

This is a potentially significant impact. **Mitigation Measure 5.4-8** would reduce the significance of this impact to less than significant.

Significance after Mitigation: Less than Significant

Impact 4.4.3-4: Greenhouse Gas Emissions and Global Climate Change (Significant and Unavoidable)

Similar to Alternative A, Alternative E has the potential to emit greenhouse gases and therefore contribute towards global climate change. With regard to Item A, Alternative E would not pose any apparent conflict with the AB 32 Scoping Plan 39 recommended actions (see **Table 3.4-3**).

With regard to Item B, Alternative E construction greenhouse gas operational emissions are summarized in **Table 4.4-22**.

TABLE 4.4-22
ALTERNATIVE E INDIRECT GHG EMISSIONS FROM ELECTRICITY (METRIC TONS PER YEAR)

Operational Emissions – Alternative E	CO2
Area Source	480
Onroad Vehicle	41,326
Electrical Use	1,952
Total	43,758
Percentage of 25,000	175%
Percentage of 174 Million	0.025%
Operational Emissions – Wastewater Treatment Plant	
Electrical Use	446
Percentage of 25,000	1.9%
Percentage of 174 Million	0.0003%

1 Project operational emissions estimates were made using URBEMIS 2007, version 9.2.4. See Appendix C more information.

SOURCE: ESA, 2009

With regard to Item C, Alternative E would provide the residents of Cloverdale and the surrounding area a closer and additional source of new employment opportunities in the construction trades and commercial service industry. Area residents would have fewer miles to travel to reach the amenities that will be provided by Alternative E, therefore decreasing emissions caused by longer trips. However, most customers would be driving from far distances to reach these premises.

The review of Items A through C indicates that Alternative E would not be consistent with the state goals of AB32 and would generate substantial amounts of greenhouse gas emissions. **Mitigation Measure 5.4-9** is recommended to reduce the significance of this impact; however, the impact would remain significant even after mitigation.

Significance after Mitigation: Significant and Unavoidable

Impact 4.4.3-5: Climate Change Impacts on Project Site (Potentially Significant)

The Intergovernmental Panel on Climate Change reports that mean sea level will rise by approximately 12 to 36 inches by the year 2100 (IPCC, 2007). However, the project site is located approximately 24 miles from the ocean, and as a result, it is unlikely that erosion or an increase in flooding as a result of climate-induced sea level rise would affect it.

The hydrology of the Russian River does not depend substantially on flows associated with snowmelt. Therefore, the Russian River system is not anticipated to incur significant reductions in water supply availability as a result of reductions in snowpack due to climate change. Climate change could, however, result in increased intensity and/or frequency of major storm events, including those events that could result in flooding. As discussed in **Section 3.3**, a portion of the project site is located within a 100-year flood zone. However, as discussed **in Section 4.3**, sufficient freeboard would be incorporated into project design, or required via mitigation measures, in order to ensure that potential increases in storm intensity due to climate change would not adversely affect the proposed facilities. Therefore, potential impacts associated with climate change would be less than significant, with implementation of **Mitigation Measure 5.3-2**.

Significance after Mitigation: Less than Significant.

4.3.6 Alternative F – No Action

Implementation of Alternative F would not have a potentially significant impact upon air quality. In the near term, current emissions from the project site would continue (primarily associated with minor residential vehicle trips, farm equipment, and residential fireplaces). In the long term, the site may be developed in a fashion similar to that presented in Alternative E. Impacts associated with air quality would be subject to review under state and local laws under this scenario, therefore a less than significant impact would result.

References

Association of Environmental Professionals, 2007. Alternative Approaches to Analyzing Greenhouse Gas Emissions and Global Climate Change in CEQA Documents.

Bay Area Air Quality Management District, CEQA Guidelines, December 1999.

IPCC, 2007. *Climate Change 2007 – The Physical Science Basis*. Contribution of Working Group I to the Fourth Assessment Report of the IPCC. Available online at: <http://www.aaas.org/news/press_room/climate_change/media/4th_spm2feb07.pdf>.

Mendocino County Air Quality Management District, Air Quality Control Rules, September, 2008.

Northern Sonoma County Air Pollution Control District, Air Quality Control Rules, October 2008.