

## **4.8 CLIMATE AND AIR QUALITY**

This section analyzes and discusses the potential air quality impacts due to the Proposed Project at Gness Field Airport (DVO or Airport).

### **4.8.1 ENVIRONMENTAL SETTING**

#### **4.8.1.1 Regulatory Framework**

##### **FEDERAL**

Two primary laws apply to the evaluation of air quality for an environmental document: the National Environmental Policy Act (NEPA) and the Clean Air Act. For a proposed airport improvement project, an air quality assessment is required that will disclose the potential for significant adverse impacts to the human environment.

For Federal air quality standards, Marin County is included in the San Francisco Bay Intrastate Air Quality Control Region.<sup>1</sup> The region does not currently meet the Federal eight-hour standard for healthful levels of ozone and has been designated by the U.S. Environmental Protection Agency (USEPA) as a marginal nonattainment area for ozone.<sup>2</sup> Further, USEPA has determined the county exceeds the 24-hour standard for emissions of fine particulate matter (PM<sub>2.5</sub>). In the past Marin County was designated as nonattainment for Carbon Monoxide (CO) but in April 1998 the Bay Area was redesignated to attainment and now operates under a maintenance plan in order to prevent emissions from reaching an unhealthy level.

##### **STATE**

Marin County is also located within the Bay Area Air Quality Management District (BAAQMD) of California. California maintains more stringent standards than the USEPA for which the County must adhere called the California Ambient Air Quality Standards (CAAQS). Marin County has been designated by the BAAQMD as nonattainment for the eight-hour and one-hour standards for ozone, the annual arithmetic mean and the twenty-four hour standards for coarse particulate matter (PM<sub>10</sub>), and the annual arithmetic mean standard for PM<sub>2.5</sub>.<sup>3</sup>

The following is a brief summary on selected State of California legislation on climate change.

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<sup>1</sup> USEPA, 40 CFR Part 81, Section 81.21, *San Francisco Bay Intrastate Air Quality Control Region*, January 16, 1981.

<sup>2</sup> USEPA website, <http://www.epa.gov/oar/oaqps/greenbk>, accessed April 2009.

<sup>3</sup> BAAQMD website, [http://www.baaqmd.gov/pln/air\\_quality/ambient\\_air\\_quality.htm](http://www.baaqmd.gov/pln/air_quality/ambient_air_quality.htm), accessed April 2009.

*Assembly Bill 32 (2006), California Global Warming Solutions Act*

In September 2006, the governor of California signed AB 32 (Chapter 488, Statutes of 2006), the California Global Warming Solutions Act of 2006, which enacted Sections 38500–38599 of the California Health and Safety Code. AB 32 requires the reduction of statewide GHG emissions to 1990 levels by 2020.

*AB 32 Climate Change Scoping Plan*

In December 2008, ARB adopted its Climate Change Scoping Plan, which contains the main strategies California will implement to achieve greenhouse gas reduction.

**LOCAL**

Marin County adopted a resolution in 2002 that recognizes both the gravity of global warming and the responsibility for local action. The resolution committed Marin County to analyze greenhouse gas emissions, set a reduction target, develop a local action plan, and implement the local action plan. Marin County did develop a local action plan<sup>4</sup> and as a result of analyzing emissions from internal government operations as well as Marin County as a whole, a target was made to voluntarily reduce greenhouse gas emissions 15% - 20% below 1990 levels by the year 2020 for internal government and 15% countywide. According to the plan, internal measures already implemented by the Marin County Department of Public Works will likely result in the County's achievement of the internal reduction target. Marin County remains proactive in implementing GHG emissions reduction projects in County buildings.

Additional information concerning Federal, state, and local regulatory requirements is provided in Appendix F, *Air Quality*.

**4.8.1.2 Existing Conditions**

An emissions inventory was prepared for the Existing Conditions (2008) using the Federal Aviation Administration (FAA) Emissions and Dispersion Modeling System (EDMS), version 5.1. The model estimates the rate of emissions of the criteria and precursor pollutants in short tons<sup>5</sup> per year.

The primary sources of air emissions at airports are aircraft, ground support equipment, stationary sources, and ground access vehicles traveling on roadways and in parking facilities. The results of the emissions inventory are provided in **Table 4.8-1**. The greatest overall emission contribution comes from aircraft operations. Emissions of Pb, PM<sub>10</sub> and PM<sub>2.5</sub> are also produced primarily by aircraft engines.

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<sup>4</sup> Marin County Community Development Agency. *Marin County Greenhouse Gas Reduction Plan*. October 2006.

<sup>5</sup> 1 short ton = 0.907184 metric tons

**Table 4.8-1  
EXISTING CONDITIONS (2008) EMISSIONS INVENTORY  
Gross Field Airport**

EMISSION SOURCES	ANNUAL EMISSIONS (tons per year)							
	CO	VOC	TOG	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	Pb
Aircraft	147.50	10.70	11.09	1.04	0.41	9.54	9.54	0.11
Ground Support Equipment	0.69	0.16	0.17	1.14	0.04	0.03	0.03	NA
GAV in Parking Facilities	0.32	0.04	0.05	0.04	0.00	0.00	0.00	NA
GAV on Roadways	0.26	0.02	0.02	0.04	0.00	0.00	0.00	NA
Stationary Sources	0.52	17.08	17.16	1.22	0.00	0.05	0.05	NA
<b>TOTAL</b>	<b>149.30</b>	<b>28.00</b>	<b>28.49</b>	<b>3.48</b>	<b>0.46</b>	<b>9.62</b>	<b>9.62</b>	<b>0.11</b>

CO: Carbon Monoxide  
VOC: Volatile Organic Compounds  
TOG: Total Organic Gases  
NOx: Nitrogen Oxides  
SOx: Sulfur Oxides  
PM10: Course particulate matter  
PM2.5: Fine particulate matter  
Pb: Lead  
GSE: Ground Service Equipment  
GAV: Ground Access Vehicles  
Total emissions may not sum exactly due to rounding.  
NA = Not applicable

Source: EDMS ver. 5.1, L&B Analysis, 2009.

**GREENHOUSE GAS EMISSIONS GHG**

Greenhouse gases (GHGs) are gases that trap heat in the earth's atmosphere. Both naturally occurring and man-made GHGs primarily include water vapor (H<sub>2</sub>O), carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O). Sources that require fuel or power at an airport are the primary sources that would generate GHGs. Aircraft are probably the most often cited air pollutant source, but they produce the same types of emissions as ground access vehicles.

Different chemical species that are emitted such as CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O have a different effect on climate. The equivalency method is a way to show relative impacts on climate change of different chemical species. Carbon Dioxide equivalents (CO<sub>2</sub>e) for this analysis were calculated using global warming potential factors provided by the Intergovernmental Panel on Climate Control's (IPCC) Fourth Assessment Report. CO<sub>2</sub>e are reported in annual metric tons. In order to determine CO<sub>2</sub>e all emissions sources were summed. Totals were converted from short to metric tons (1 short ton = 0.907184 metric tons) and then multiplied by the Global Warming Potential provided in the IPCC Fourth Assessment Report. The results are provided in **Table 4.8-2**.

**Table 4.8-2  
EXISTING CONDITIONS (2008) CO<sub>2</sub> EQUIVALENT  
Gross Field Airport**

Metrics	Annual Metric Tons		
	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O
Aircraft	2,233.30	0.58	0.06
GAV	13.34	0.00	0.00
Stationary Sources	29.36	0.00	0.00
GWP <sub>100</sub>	1.00	25.00	298.00
<b>CO<sub>2</sub>e subtotal</b>	<b>2,276.00</b>	<b>14.46</b>	<b>18.47</b>
<b>CO<sub>2</sub>e Total</b>	<b>2,308.93</b>		

GAV: Ground Access Vehicles  
 GWP: Global Warming Potential  
 CO<sub>2</sub>e: Carbon Dioxide equivalent  
 CO<sub>2</sub>: Carbon Dioxide  
 CH<sub>4</sub>: Methane  
 N<sub>2</sub>O: Nitrogen Dioxide (nitrous oxide)  
 Total emissions may not sum exactly due to rounding.  
 Source: IPCC Fourth Assessment Report and L&B Analysis, 2009

## 4.8.2 ENVIRONMENTAL IMPACTS AND MITIGATION

### 4.8.2.1 Significance Criteria

For the purposes of this analysis, the BAAQMD thresholds of significance in addition to the Federal standards were used to determine if the project would result in a significant air quality impact. The BAAQMD has established significance thresholds provided in **Table 4.8-3** described in their California Environmental Quality Act (CEQA) Guidelines<sup>6</sup> to assist lead agencies in determining whether a project or plan may have a significant air quality impact.

**Table 4.8-3  
BAAQMD THRESHOLDS**

POLLUTANTS	Tons/Year	Pounds/Day
Reactive Organic Gases (ROG)	10	54
Nitrogen Oxides (NO <sub>x</sub> )	10	54
Coarse Particulate Matter (PM <sub>10</sub> )	15	82
Fine Particulate Matter (PM <sub>2.5</sub> )	10	54

Note: Reactive organic gases (ROG) are a subset of total organic gases (TOG), where TOG is multiplied by the fraction of reactive organic gases (FROG) to obtain ROG. The EDMS computer program provides an accounting of TOG, the larger set of organic gases, versus ROG. Therefore, for the purposes of this analysis, TOG will be assumed to reflect ROG.

Source: BAAQMD, CEQA Air Quality Guidelines, June 2010.

<sup>6</sup> BAAQMD, CEQA Air Quality Guidelines. June 2010.

The BAAQMD has thresholds of significance for construction emissions. If daily maximum construction emissions exceed the applicable thresholds provided in **Table 4.8-4**, the proposed action would likely result in a significant cumulative impact.

**Table 4.8-4  
BAAQMD THRESHOLDS FOR CONSTRUCTION**

<b>POLLUTANTS</b>	<b>Daily Maximum Emissions Pounds/Day</b>
Reactive Organic Gases (ROG)	54
Nitrogen Oxides (NO <sub>x</sub> )	54
Coarse Particulate Matter (PM <sub>10</sub> )	82
Fine Particulate Matter (PM <sub>2.5</sub> )	54

Note: The daily maximum emission thresholds for PM10 and PM2.5 applies to construction exhaust emissions only.

Source: BAAQMD, CEQA Air Quality Guidelines, June 2010.

The BAAQMD also has thresholds of significance for GHG emissions in the CEQA Guidelines. If annual emissions of operational-related GHGs would exceed 1,100 metric tons per year of CO<sub>2</sub>e, the proposed project would result in a significant cumulative impact. **Table 4.8-5** summarizes both the Federal and State thresholds.

In addition to these thresholds, Appendix G of the CEQA Guidelines contains a list of effects that will normally be considered significant to climate and air quality. These include:

- A project that will “violate any ambient air quality standard or contribute substantially to an existing or projected air quality violation,”
- A project that conflicts “with or obstruct[s] implementation of the applicable air quality plan,”
- A project that results “in a cumulatively considerable net increase in any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors),”
- A project that exposes “sensitive receptors to substantial pollutant concentrations,”
- A project that creates “objectionable odors affecting a substantial number of people.”

**Table 4.8-5  
POLLUTANT THRESHOLDS FOR ANNUAL NET EMISSIONS (tons per year)  
Gross Field Airport**

POLLUTANTS	THRESHOLDS	
	Federal <sup>1</sup>	Existing BAAQMD <sup>2</sup>
Carbon Monoxide (CO)	100	NA
Volatile Organic Compounds (VOC)	100	NA
Total/Reactive Organic Gases (ROG) <sup>3</sup>	NA	10
Nitrogen Oxides (NO <sub>x</sub> )	100	10
Sodium Oxides (SO <sub>x</sub> )	100	NA
Coarse Particulate Matter (PM <sub>10</sub> )	100	15
Fine Particulate Matter (PM <sub>2.5</sub> )	100	10
Lead (Pb)	25	NA
<b>Greenhouse Gas Emissions</b>		
Carbon Dioxide Equivalent (CO <sub>2</sub> e) <sup>4</sup>	NA	1,100

BAAQMD: Bay Area Air Quality Management District.

NA: Not Applicable.

Notes:

1. Federal thresholds are based on the Clean Air Act and represent the difference between the Proposed Project and the No Action of the same year.
2. BAAQMD thresholds are from the most recently released CEQA Air Quality Guidelines dated June 2010.
3. For the purposes of this analysis Total Organic Gases is being assumed to be reflective of Reactive Organic Gases.
4. CO<sub>2</sub>e is calculated using metric tons.

Source: BAAQMD, CEQA Air Quality Guidelines, June 2010.

Appendix G of the *CEQA Guidelines* also addresses GHG emissions. The *CEQA Guidelines* indicate that a project could have a significant impact if it would:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment,
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Appendix I of the *CEQA Guidelines* also indicates that a project could have a significant air quality impact if it would result in:

- "The creation of objectionable odors", or
- "Alteration of air movement moisture or temperature, or change in climate, either locally or regionally."

Marin County also has developed air quality criteria for significance thresholds in its Environmental Impact Report (EIR) Guidelines.<sup>7</sup> These air quality criteria for significance are listed as follows:

- Would the project cause or contribute substantially to existing or projected air quality violations?
- Would the project result in exposure of sensitive receptors (i.e. individuals with respiratory diseases, the young, the elderly) to substantial pollutant concentrations?
- Would toxic air contaminants cause a significant health risk above Air Pollution Control District level of significance, if any (e.g. cancer risk of more than one in a million)?

Therefore, in addition to the Federal and BAAQMD thresholds should the emissions caused by Alternative B Sponsor's Proposed Action or Alternative D exceed the annual or daily thresholds or the effects described in the CEQA or Marin County guidelines, the alternatives would be considered to have a significant air quality impact.

#### **4.8.2.2 Environmental Impacts of the Proposed Project**

Project climate and air quality impacts consist of two types:

- Long-term increases in emissions due to airport activity, and
- Short-term increases in emissions due to project construction.

The potential air quality impacts were assessed based on an emission inventory prepared for the Proposed Project and the alternatives analyzed in this EIR. The assessment was prepared according to guidelines established under the BAAQMD's *CEQA Air Quality Guidelines*, FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*, and FAA *Air Quality Procedures for Civilian Airports & Air Force Bases*.<sup>8</sup>

The results of the emissions inventory for the Proposed Project were compared to the existing condition to disclose the potential increase in emissions caused by the Proposed Project. All input data, assumptions, and methodologies used to develop this air quality assessment are provided in Appendix F, *Air Quality*.

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<sup>7</sup> Marin County Community Development Agency. Environmental Impact Review (EIR) Guidelines Policy and Procedures for Implementation of the California Environmental Quality Act (CEQA). Adopted May 17, 1994 Marin County Board of Supervisors.

<sup>8</sup> BAAQMD, *CEQA Air Quality Guidelines*, June 2010; FAA, *Order 1050.1E Environmental Impacts: Policies and Procedures*, March 20, 2006, FAA; and *Air Quality Procedures for Civilian Airports & Air Force Bases*, April 1997, and the Addendum dated September 2004.

**Impact 4.8-1: Long-term Increases in Air Pollution Emissions due to Airport Activity (less than significant).**

The Proposed Project would result in an incremental long-term increase in total air pollutant emissions compared to the existing condition. The increase is due to additional taxi-time, greater weight for a portion of the aircraft operations, and natural growth in activity at the Airport that is expected to occur with or without the Proposed Project. Each of these elements is described below.

Additional Taxi-Time

Emissions due to aircraft taxiing will increase as compared to the existing conditions because the extension of the runway and taxiway will result in aircraft having to taxi farther between the northwest end of the runway and the hangar areas. Longer taxi-times increase annual aircraft emissions because the engines are running longer.

Greater Aircraft Weights

In addition to the increase in taxi-time, a portion of the aircraft (approximately 3,000 departures by the larger aircraft that currently operate at DVO) would be able to take off with 100 percent of their Maximum Take Off Weight (MTOW) as compared to the existing condition where these aircraft must reduce MTOW due to the length of the runway (see Appendix D, *Runway Length Analysis*). Aircraft that are heavier on takeoff result in an increase in emissions. An estimate of the effect of increased weights was included in this assessment of emissions.

A benefit of the Proposed Project is that aircraft that would be able to take off with MTOW would no longer need to make two trips between DVO and their destination or they would no longer need to refuel at an alternate airport that has longer runways before continuing on to their final destination. The elimination of these activities would help to reduce overall emissions at DVO and/or the alternate airports. However, given the variability of this activity in terms of the specific number of aircraft and the airports affected, the potential reduction in air emissions at DVO or other area airports was not quantified in this analysis. By doing this, the analysis represents the greatest potential estimate for emissions.

Increased Activity

Aviation activity at DVO is expected to increase from existing conditions in the future (see Appendix C, *Aviation Activity Forecast*). A total of 100,500 aircraft operations are expected in 2018. Aviation activity (take offs and landings) represents the largest contributor of emissions at the Airport; however this increase is anticipated to occur with or without the implementation of the Proposed Project. Although the aircraft emissions are expected to occur with or without the Proposed Project, they are included in the emissions inventory to represent the greatest potential emissions.



**Table 4.8-6** presents the 2018 emissions inventory for the Proposed Project. **Table 4.8-7** presents the CO<sub>2</sub>e emissions for the 2018 conditions.

**Table 4.8-6  
PROPOSED PROJECT (2018) EMISSIONS INVENTORY**

EMISSION SOURCES	ANNUAL EMISSIONS (tons per year)							
	CO	VOC	TOG	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	Pb
Aircraft	179.54	14.40	14.90	1.32	0.53	11.24	11.24	0.13
Ground Support Equipment	0.52	0.08	0.08	0.19	0.01	0.01	0.01	NA
GAV in Parking Facilities	0.25	0.03	0.03	0.02	0.00	0.00	0.00	NA
GAV on Roadways	0.21	0.01	0.01	0.02	0.00	0.00	0.00	NA
Stationary Sources	0.52	17.14	17.22	1.22	0.00	0.05	0.05	NA
<b>TOTAL</b>	<b>181.05</b>	<b>31.66</b>	<b>32.24</b>	<b>2.77</b>	<b>0.54</b>	<b>11.30</b>	<b>11.30</b>	<b>0.13</b>

CO: Carbon Monoxide  
VOC: Volatile Organic Compounds  
TOG: Total Organic Gases  
NO<sub>x</sub>: Nitrogen Oxides  
SO<sub>x</sub>: Sulfur Oxides  
PM<sub>10</sub>: Course particulate matter  
PM<sub>2.5</sub>: Fine particulate matter  
Pb: Lead  
GSE: Ground Service Equipment  
GAV: Ground Access Vehicles  
Total emissions may not sum exactly due to rounding.  
NA = Not applicable/Not available  
Source: EDMS ver. 5.1, L&B Analysis, 2009.

**Table 4.8-7  
PROPOSED PROJECT (2018) CO<sub>2</sub> EQUIVALENT  
Gross Field Airport**

Metrics	Annual Metric Tons		
	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O
Aircraft	2,862.73	0.69	0.08
GAV	15.68	0.00	0.00
Stationary Sources	35.02	0.00	0.00
GWP <sub>100</sub>	1.00	25.00	298.00
<b>CO<sub>2</sub>e subtotal</b>	<b>2,913.43</b>	<b>17.45</b>	<b>24.00</b>
<b>CO<sub>2</sub>e Total</b>	<b>2,954.87</b>		

GAV: Ground Access Vehicles  
GWP: Global Warming Potential  
CO<sub>2</sub>e: Carbon Dioxide equivalent  
CO<sub>2</sub>: Carbon Dioxide  
CH<sub>4</sub>: Methane  
N<sub>2</sub>O: Nitrogen Dioxide (nitrous oxide)  
Total emissions may not sum exactly due to rounding.  
Source: IPCC Fourth Assessment Report and L&B Analysis, 2009

The inventories were then compared to existing condition emissions to discern the net emissions (the difference between the total emissions from the Proposed Project and existing conditions). **Table 4.8-8** summarize the net difference in emissions and compares that to the Clean Air Act and BAAQMD threshold for each pollutant for the 2018 conditions. If the proposed project's net emissions exceed the conformity threshold then a significant impact would be present. Conversely, if the proposed project's net emissions do not exceed the conformity threshold then a significant impact would not be present.

**Table 4.8-8  
2018 PROPOSED PROJECT ANNUAL EMISSIONS COMPARED TO  
THRESHOLDS (tons per year)  
Gross Field Airport**

POLLUTANTS	CONDITIONS			THRESHOLDS	
	Existing	2018 Proposed Project	Net Emissions	Federal <sup>1</sup>	Existing BAAQMD <sup>2</sup>
Carbon Monoxide (CO)	149.30	181.05	31.75	100	NA
Volatile Organic Compounds (VOC)	28.00	31.66	3.65	100	NA
Total/Reactive Organic Gases (ROG) <sup>3</sup>	28.49	32.24	3.75	NA	10
Nitrogen Oxides (NO <sub>x</sub> )	3.48	2.77	-0.71	100	10
Sodium Oxides (SO <sub>x</sub> )	0.46	0.54	0.08	100	NA
Coarse Particulate Matter (PM <sub>10</sub> )	9.62	11.30	1.68	100	15
Fine Particulate Matter (PM <sub>2.5</sub> )	9.62	11.30	1.68	100	10
Lead (Pb)	0.11	0.13	0.02	25	NA
<b>Greenhouse Gas Emissions</b>					
Carbon Dioxide Equivalent (CO <sub>2</sub> e) <sup>4</sup>	2,308.93	2,954.87	645.94	NA	1,100

Notes:

1. Federal thresholds are based on the Clean Air Act and represent the difference between the Proposed Project and the No Action of the same year.
2. BAAQMD thresholds are from the most recently released CEQA Air Quality Guidelines dated June 2010.
3. For the purposes of this analysis Total Organic Compounds is being assumed to be reflective of Reactive Organic Compounds.
4. CO<sub>2</sub>e is calculated using metric tons.

Source: Landrum & Brown, September 2009.

The evaluation presented for 2018 showed that the net emissions for the Proposed Project would not exceed any CAA or BAAQMD thresholds. Therefore, the Proposed Project would result in less-than-significant air quality impacts. The following sections discuss the other Federal, state, and local requirements related to air quality.

## **GENERAL CONFORMITY EVALUATION**

The evaluation of General Conformity showed that annual net emissions caused by operation and construction of the Proposed Project, would not equal or exceed the relevant *de minimis* thresholds for the pollutants of concern and therefore, would not have a potential for significant air quality impacts in Marin County. As a result, a CAA General Conformity Determination is not necessary for the Proposed Project.

Further, because the emissions caused by the Proposed Project are *de minimis*, in accordance with FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*, and FAA *Air Quality Procedures for Civilian Airports & Air Force Bases* the project is determined not to cause an exceedance of the National Ambient Air Quality Standards (NAAQS)<sup>9</sup>, and there is no requirement to conduct dispersion analysis to compare project-related emissions to the NAAQS. Consequently, the Proposed Project complies with CAA Section 176(c)(1). No further analysis or reporting is required under the provisions of the CAA.

## **STATE IMPLEMENTATION PLAN COMPLIANCE**

According to the CAA, each state must provide the USEPA with a State Implementation Plan (SIP). The SIP must include a strategy for air quality improvement in local areas for each criteria pollutant that exceeds the NAAQS. The SIP must also include a plan to maintain acceptable air quality in areas that do not exceed the NAAQS.

The California SIP is made up of a series of plans for each of the major air basins in the state. The Final Bay Area 2010 Clean Air Plan<sup>10</sup> was adopted on September 15, 2010. The 2010 Bay Area Clean Air Plan updated the Bay Area 2005 Ozone Strategy in accordance with the requirements of the California Clean Air Act to implement "all feasible measures" to reduce ozone. The Bay Area 2010 Clean Air Plan (CAP) provides a comprehensive plan to improve air quality, protect public health, and protect the climate. The plan proposes a control strategy to reduce four types of air pollutants – ozone, particulate matter (PM), air toxics, and greenhouse gases – in a multi-pollutant framework

The air quality evaluation showed that annual net emissions caused by the Proposed Project, would not equal or exceed the relevant *de minimis* thresholds for the pollutants of concern. Therefore the Proposed Project would be assumed to comply with the SIP because it would not cause or contribute to new violations of any NAAQS or CAAQS; increase the frequency or severity of existing violations of any NAAQS or CAAQS; or, delay the timely attainment of any NAAQS or CAAQS or any required interim emission reductions or milestones.

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<sup>9</sup> FAA, *Air Quality Procedures for Civilian Airports and Air Force Bases*, April 1997 and Addendum, September 2004, quoted from Section 2.1.5, *NAAQS Assessment*, "If the action is in a nonattainment or maintenance area and exempt or presumed to conform under conformity requirements, it is assumed that a NAAQS assessment is not required for an airport or air base action since it is unlikely the action's pollutant concentrations would exceed the NAAQS."

<sup>10</sup> Bay Area Air Quality Management District. Final Bay Area Clean Air Plan. September 15, 2010.

## **BAAQMD THRESHOLDS OF SIGNIFICANCE**

The evaluation of emissions showed that the Proposed Project would not cause annual net emissions that would equal or exceed the relevant BAAQMD *de minimis* thresholds.

## **GREENHOUSE GAS (GHG) THRESHOLDS OF SIGNIFICANCE**

The evaluation of GHG emissions showed that the Proposed Project would not cause annual net GHG emissions that would equal or exceed the BAAQMD *de minimis* thresholds of 1,100 metric-tons per year. Therefore the Proposed Project would not result in a cumulatively significant contribution of GHG emissions or result in a cumulatively significant impact to global climate change.

## **ODORS**

While offensive odors rarely cause any physical harm, they still can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints. The Proposed Project does not involve siting a new odor source near an existing sensitive receptor or siting a new sensitive receptor near an existing odor source. The nearest residential area or sensitive receptor is located at least one mile south of the Airport. The Proposed Project does not include construction or operation of wastewater treatment plants, landfills, confined animal facilities, composting stations, food manufacturing plants, refineries or chemical plants. The Proposed Project does not have the potential to cause odor emissions or expose members of the public to objectionable odors.

**Mitigation:** None required.

### **Impact 4.8-2: Short-term Increases in Air Pollution Emissions due to Construction Activity (less than significant)**

During construction open space areas adjacent to the project site and other existing development in the area would be intermittently impacted by construction dust. In addition operation of construction equipment would result in temporary emissions.

A thorough discussion of the inventory of construction emissions is provided in Appendix F.

Final engineering for the Proposed Project is not yet complete and as such the final construction schedule is not available. However, Marin County has prepared a preliminary design report for the project.<sup>11</sup> Information in that report and estimates of typical construction activity based on the type and size of the project were used to develop a construction phasing plan that would last approximately 18 months.<sup>12</sup> The inventory of annual construction emissions is summarized in **Table 4.8-9**.

**Table 4.8-9  
PROPOSED PROJECT CONSTRUCTION EMISSIONS INVENTORY  
Gross Field Airport**

CONSTRUCTION YEARS	ANNUAL CONSTRUCTION EMISSIONS (tons per year)								
	CO	VOC	TOG	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	Pb	CO <sub>2</sub>
Year 1	2.64	NA	0.54	4.69	0.00	0.22	0.20	NA	716.19
Year 2	0.83	NA	0.17	1.23	0.00	0.07	0.07	NA	176.67

CO: Carbon Monoxide  
VOC: Volatile Organic Compounds  
TOG: Total Organic Gases  
NO<sub>x</sub>: Nitrogen Oxides  
SO<sub>x</sub>: Sulfur Oxides  
PM<sub>10</sub>: Course particulate matter  
PM<sub>2.5</sub>: Fine particulate matter  
Pb: Lead  
NA = Not applicable/Not available  
Note: PM<sub>10</sub> and PM<sub>2.5</sub> values are for exhaust emissions only.  
Source: URBEMIS ver. 9.2.4, L&B Analysis, 2009.

The daily construction emissions for each phase of Proposed Project construction are provided in **Table 4.8-10**. The highest maximum daily construction emission is shown in bold. Based on the maximum daily emission thresholds, the construction activity associated with the Proposed Project would not exceed maximum daily BAAQMD thresholds for significance.

<sup>11</sup> Preliminary Design Report Runway Extension Gness Field Marin County, California FAA AIP Project No. 3-06-0167-08. Cortright & Seibold, December 20, 2002.  
<sup>12</sup> The preliminary design report did not provide a schedule for construction. Therefore, for the purposes of this air quality analysis and to estimate emissions, a preliminary schedule was developed. An 18-month construction schedule was developed by Landrum & Brown based on airport construction projects of similar size and scope that were successfully reviewed in previous airport environmental documents. An actual construction schedule would be developed upon final engineering.

**Table 4.8-10  
PROPOSED PROJECT MAXIMUM DAILY CONSTRUCTION EMISSIONS**

EMISSION SOURCES	MAXIMUM DAILY CONSTRUCTION EMISSIONS (Pounds per day)			
	ROG	NOx	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>BAAQMD Threshold</b>	<b>54</b>	<b>54</b>	<b>82</b>	<b>54</b>
Phase 1 Drainage Ditch and Levee Realignment/Extension	3.85	34.96	1.52	1.40
Phase 2 Earthwork/Fill Material	4.10	36.36	1.67	1.54
Phase 3 Fine Site Grading / Extension of Utilities	<b>4.85</b>	<b>37.15</b>	<b>1.92</b>	<b>1.76</b>
Phase 4 Sub base Prep	3.39	28.07	1.36	1.25
Phase 5 Base Prep	3.15	24.87	1.25	1.15
Phase 6 Runway/Taxiway/RSA Paving	2.03	11.71	0.96	0.88

ROG: Reactive Organic Gases

NOx: Nitrogen Oxides

CO: Carbon Monoxide

SO2: Sulfur Dioxide

PM10: Course particulate matter

PM2.5: Fine particulate matter

RSA: Runway Safety Area

Note: The daily maximum emissions for PM10 and PM2.5 are for construction exhaust emissions only.

Source: URBEMIS ver. 9.2.4, L&B Analysis, 2009.

**Mitigation Measure 4.8-2:** Based on the emission thresholds, the construction activity associated with the Proposed Project would not exceed annual CAA or BAAQMD thresholds for significance. The BAAQMD recommends the use of the following basic construction mitigation measures whether or not construction related emissions exceed applicable thresholds of significance. Further discussion of the BAAQMD requirements and the BMPs is provided in Appendix F. To avoid any potential impacts from fugitive dust, Marin County shall implement the following basic construction mitigation measures recommended by the FAA and BAAQMD.

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 mph.
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible.
- Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.

- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.
- Exposing the minimum area of erodible earth.
- Applying temporary mulch with or without seeding.
- Using water sprinkler trucks.
- Using covered haul trucks.
- Using dust palliatives or penetration asphalt on haul roads.
- Using plastic sheet coverings.

**Responsibility and Monitoring** – The Marin County Department of Public Works shall be responsible for the Mitigation Monitoring and Reporting Plan which will incorporate the provisions of the Mitigation Measures listed above in all contractors' contracts. The individual contractors would ultimately implement the mitigation measures. The Marin County Department of Public Works would monitor the implementation of the dust control measures.

**Mitigation:** Recommended as specified above.

### **4.8.3 CUMULATIVE IMPACTS OF THE PROPOSED PROJECT**

The results of this air quality analysis show that implementation of Proposed Project would result in *de minimis* (negligible and insignificant)<sup>13</sup> increases in air emissions. Net emissions caused by the construction and implementation of the Proposed Project would not cause a violation of any NAAQS or CAAQS, delay the attainment of any NAAQS or CAAQS, or worsen any existing NAAQS or CAAQS violation. Therefore, the *de minimis* emissions defined for any of the alternatives, when combined with present and future projects, will not have the potential to change the current status of the air quality in Marin County and will not result in significant cumulative impacts. As necessary, mitigation procedures would be implemented to minimize potential impacts that would occur during construction.

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<sup>13</sup> A Federal action that is demonstrated to cause *de minimis* emissions is defined as having negligible or insignificant impacts; reference FAA, Air Quality Procedures for Civilian Airports & Air Force Bases, see Glossary entry for "de minimis," April 1997 and Addendum, September 2004.

In addition, the Proposed Project would not exceed the BAAQMD GHG thresholds. Therefore Proposed Project would not result in a cumulatively significant contribution of GHG emissions or result in a cumulatively significant impact to global climate change.

Under CEQA, upon determining if a project does not individually have significant operational air quality impacts, the determination of significant cumulative impact should be based on an evaluation of the consistency of the Proposed Project with the local general plan and of the general plan with the regional air quality plan.

### **CONSISTENCY WITH LOCAL PLANS**

The Marin Countywide Plan guides the conservation and development of Marin County. The Plan sets a target to maintain Gness Field as the County's civilian airport facility in accordance with the adopted Airport Master Plan. The Proposed Project would be consistent with the Marin Countywide Plan.

In addition to the Countywide Plan, Marin County adopted a resolution in 2002 that recognizes both the gravity of global warming and the responsibility for local action. The resolution committed Marin County to analyze GHG emissions, set a reduction target, develop a local action plan, and implement the local action plan. Marin County did develop a local action plan<sup>14</sup> and as a result of analyzing emissions from internal government operations as well as Marin County as a whole, a target was made to voluntarily reduce GHG emissions 15 percent - 20 percent below 1990 levels by the year 2020 for internal government and 15 percent countywide. According to the plan, internal measures already implemented by the Marin County Department of Public Works will likely result in Marin County's achievement of the internal reduction target. Marin County remains proactive in implementing GHG emissions reduction projects in County buildings.

### **CONSISTENCY WITH CLEAN AIR PLAN**

The Marin Countywide Plan's meets or exceeds the Clean Air Plan's Transportation Control Measures. In addition Marin's Countywide plan provides buffer zones around sources of odors, toxics, and accidental releases and does not require a general plan amendment. Marin's Countywide Plan and Greenhouse Gas Reduction plan are consistent with the Final Bay Area 2010 Clean Air Plan. Therefore, the Proposed Project will not result in any significant impacts and no further analysis regarding cumulative impacts is necessary.

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<sup>14</sup> Marin County Community Development Agency. *Marin County Greenhouse Gas Reduction Plan*. October 2006.