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# CHAPTER 8

## AIR QUALITY

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## CHAPTER 8 AIR QUALITY

### 8.1 EXISTING SETTING

Development of the proposed project is expected to generate air pollutant emissions during construction activities and occupancy of the proposed residences. Placer County is in a federal Non-Attainment Area for ozone and is designated as a Non-Attainment area for State ozone and particulate matter standards. This chapter addresses project impacts on air quality by analyzing the type and quantity of emissions that would be generated by development of the proposed project. Air pollutant emission estimates were prepared through the use of the URBEMIS 2007 program developed for the California Air Resources Board (CARB). The resulting technical support materials are provided in Appendix F to this Draft EIR.

Air quality in the state of California is regulated and monitored by CARB. The state is divided into fifteen air basins, in which local authority is given to the Air Pollution Control Districts and Air Quality Management Districts. Air basin boundaries were developed in recognition of both geographic features and existing political boundaries (i.e., county limits), while air district boundaries are typically coterminous with political boundaries. Air districts are charged with enforcing the air quality standards established by the state and federal governments, while providing local expertise and knowledge of local conditions. In general, local districts are responsible for control of stationary sources of emissions and mobile source emissions are controlled by state and federal regulations.

The Orchard at Penryn project site is located in central Placer County, which lies within the Sacramento Valley Air Basin. Air quality in the project vicinity is influenced by both local and distant emission sources. Air pollutant sources in the immediate project vicinity include emissions from vehicle traffic on Penryn and Taylor roads, area sources such as landscaping maintenance and agricultural activities, and stationary sources such as residential woodstoves and barbecues.

Other significant air pollutant sources in the Penryn area include vehicle traffic on Interstate 80 (I-80) and Sierra College Boulevard as well as local agricultural, commercial and industrial land uses. I-80 and two gas stations at the Penryn Road/westbound I-80 on-ramp are approximately 1,200 feet south of the project site.

Distant emission sources that influence air quality in Placer County include the vehicle traffic, agricultural activities, and various commercial and industrial activities in the Sacramento metropolitan area and beyond.

#### **Climate**

Mild, wet winters and hot, dry summers characterize the climate of central and western Placer County. The average winter temperature is 49 degrees. Average summer temperatures range between 70 and 90 degrees, and daytime temperatures can exceed 100 degrees. Precipitation generally occurs between November and April. Mean average annual rainfall in the project area ranges from 22 to 35 inches.

Wind patterns in the Sacramento Valley are influenced by the mountain ranges present on three sides of the valley. In spring and early summer, prevailing winds are from the south and southwest as air enters the Sacramento Valley Air Basin through the Carquinez Strait. This brings cooler air into the valley, but also brings in pollutants from the San Francisco Bay Area. As summer ends, the marine air influx into the valley diminishes and winds may flow southward through the Valley.

Atmospheric stagnation can occur anytime during the year but is more common in autumn. The calm conditions experienced when the marine air influx reduces can lead to increased pollutant concentrations as pollutants emitted over several days can become trapped in the valley and low foothills. In addition, temperature inversions occur more frequently in late fall and early spring. These inversions occur when a layer of warm air traps a layer of cold air beneath it, preventing vertical dispersion of air contaminants. The presence of an inversion layer results in higher concentrations of pollutants near ground level.

### **Air Contaminants and Associated Public Health Concerns**

Ozone and particulate matter (PM) are pollutants of particular concern in central Placer County. Under the air quality standards mandated by the California Clean Air Act, the Sacramento Valley Air Basin is currently in non-attainment for particulate matter and ozone. This air basin is also in a non-attainment area for federal ozone standards under the federal Clean Air Act. Continued non-attainment status under the federal Clean Air Act could result in economic penalties and restrictions on development in the region. As shown in the tables included in this discussion, violations of ozone and particulate matter standards have occurred and continue to occur in the region.

#### **Ozone**

Naturally occurring ozone present in the earth's stratosphere, approximately 10 to 30 miles above the earth's surface, helps block ultraviolet radiation from entering the earth's atmosphere. However, when ozone occurs at ground level it can cause damage to human health and the health of local vegetation. Ground-level ozone is not a direct emission from pollution sources. It is formed from chemical reactions between two pollutants that are emitted from a variety of sources – nitrogen oxides (NO<sub>x</sub>) and reactive organic compounds (ROC, also referred to as ROG – reactive organic gasses). These pollutants are also emitted from motor vehicles and released into the air in the process of evaporation of various organic compounds (e.g., fuels and solvents). The chemical reaction that forms ozone requires warm temperatures and sunlight (U.S. Environmental Protection Agency [U.S. EPA] 2010a). For this reason, ozone is often thought of as a summertime pollutant.

Wind carries ozone and the pollutants that form it hundreds of miles away from their original source. This can allow for ozone to dissipate into the air on wind currents, but can also lead to rural areas having high concentrations of ozone particles despite their distance from substantial pollutant sources. Ground-level concentrations of ozone increase when air currents are restricted, such as due to the presence of an inversion layer.

### **Particulate Matter**

Particulate matter is a type of air pollution that consists of varying mixtures of particles suspended in the air. Particulate matter less than 2.5 microns in diameter is referred to as PM<sub>2.5</sub>, or fine particles. Particulate matter between 2.5 and 10 microns in diameter is referred to as PM<sub>10</sub>, or coarse particles. (In comparison, a human hair is about 75 microns in diameter.) Major sources of coarse and fine particles include agricultural burning, construction activities, woodburning stoves and fireplaces, vehicle exhaust, wind-blown dust, vehicles traveling on unpaved roads, materials handling, and crushing and grinding operations. Particulate matter is also formed in the atmosphere from reactions of nitrogen dioxide and sulfur dioxide with ammonia.

Particulate matter causes health problems as the human immune system reacts to the presence of inhaled particles that lodge within a person's lungs. Fine particles can lodge deeper within the lungs than coarse particles, posing a more serious health threat. Fine particles also can have a damaging effect on health by interfering with the body's mechanism for clearing the respiratory tract or by acting as a carrier of absorbed toxic substances.

Scientific studies have linked inhaled PM to several significant health problems, including aggravated asthma, increases in respiratory symptoms like coughing and difficult or painful breathing, chronic bronchitis, decreased lung function, irregular heartbeat and nonfatal heart attacks, and premature death in people with heart or lung disease (U.S. EPA 2010b). Very small particulates of certain substances can cause direct lung damage or can contain absorbed gasses that may be injurious. Populations that are especially sensitive to the health effects of exposure to PM include children, the elderly, exercising adults, individuals with influenza, asthmatics, and those who suffer from chronic obstructive pulmonary disease.

In addition to health concerns, PM emissions can result in environmental effects such as reduced visibility, water pollution (as particulates settle out of the air and into water bodies), degradation of vegetation (as particulates settle on leaves as dust), and damage to structures (U.S. EPA 2010b). Particulate matter can injure crops, trees, and shrubs, as well as cause damage to other surfaces, such as metal and fabrics, through chemical reactions. Fine particles also impair visibility by scattering light and reducing the visual range in urban, rural, and wilderness areas. The haze caused by fine particles can diminish crop yields by reducing sunlight.

### **Toxic Air Contaminants**

Toxic air contaminants (TACs) are pollutants that may pose a hazard to human health. Specifically, TACs may be expected to result in an increase in mortality or serious illness. Health effects of TACs include cancer, birth defects, neurological damage, damage to the immune system, and diseases that lead to death. Sources of TACs include motor vehicles, industrial processes such as petroleum refining and chrome plating operations, and commercial operations such as gasoline stations and dry cleaners.

#### **TAC Sources in the Project Vicinity**

Vehicle exhaust from cars and trucks includes at least 40 different TACs. Diesel exhaust particulate matter has been identified as a TAC. CARB regulates the composition of diesel fuel

sold in California to minimize particulate matter in diesel exhaust. Gas stations and high volume roadways are common sources of TACs. As stated above, I-80 and two gas stations at the Penryn Road/westbound I-80 on-ramp are approximately 1,200 feet south of the project site. The CARB *Air Quality and Land Use Handbook* (2005) recommends that sensitive receptors should be located at least 500 feet from freeways, 300 feet from large gas stations, and 50 feet from typical gas dispensing facilities. At a distance of 1,200 feet from I-80 and the nearby gas stations, the project site is not exposed to substantial pollutant emissions, pollutant concentrations, or toxic air contaminants from the freeway or gas station.

### **Asbestos**

Asbestos is a known carcinogen and therefore considered a TAC. Health effects of exposure to asbestos can include lung cancer, mesothelioma (a rare cancer of the thin membranes lining the lungs, chest and abdominal cavity), and asbestosis (a non-cancerous lung disease which causes scarring of the lungs) (CARB 2010). Naturally occurring asbestos is found in some areas throughout California, most commonly where ultramafic rock or serpentinite rock is present. Another form of asbestos, known as tremolite, can be found associated with ultramafic rock, particularly near faults. When construction activities occur in areas with naturally occurring asbestos in the soils or rock, the asbestos can become airborne and may be inhaled.

The California Department of Conservation's California Geological Survey prepared a map and accompanying report on the relative likelihood for the presence of naturally occurring asbestos in Placer County. Areas that were determined "most likely" and "moderately likely" to contain naturally occurring asbestos are areas with soil types and geologic units where chemical and physical conditions may have supported formation of asbestos. The project site is in an area where soil is from weathered granitic rocks. This soil type and geologic unit does not typically support formation of naturally occurring asbestos. The project site is in an area considered "least likely" to contain naturally occurring asbestos.

### **Air Quality Monitoring**

Air quality monitoring stations throughout the Sacramento Valley Air Basin measure pollutant concentrations hourly. Data recorded by these stations is used to determine whether the air basin meets the applicable air quality standards. As stated above, air quality in the Sacramento Valley Air Basin complies with most state and federal air quality standards, but is designated as a non-attainment area for ozone and PM<sub>10</sub> standards.

Air pollutant monitoring data for some pollutants is publically available at the CARB website. There are two active Placer County air pollutant monitoring stations in the Sacramento Valley Air Basin. The station located in North Auburn monitors only ozone concentrations. The station located in Roseville (on North Sunrise Boulevard) monitors ozone, CO, nitrogen dioxide, PM<sub>10</sub>, and PM<sub>2.5</sub>. During the 1990's and through 2002, an additional monitor in Rocklin tracked ozone, CO, nitrogen dioxide, and PM<sub>10</sub>. Data from each monitoring station is available at the CARB website ([www.arb.ca.gov](http://www.arb.ca.gov)).

In addition to data from the monitoring stations, the CARB website provides pollutant concentration trend summaries for each air basin. Data collected from the monitoring stations and the trend summaries is shown below. *Table 8.1* identifies on how many days in a given year the ozone concentration exceeded the current state and federal standards and *Table 8.2* identifies

on how many days in a given year the PM<sub>10</sub> concentration exceeded the current state standard. For both pollutants, the monitoring data shows that the number of days on which air pollutant concentration standards are exceeded each year is generally declining. However, the standards are still being exceeded several times each year.

**Table 8.1**  
**2000-2009 Ozone Trends**

Station	Year	Days above Standard		
		State		Federal
		1-Hour	8-Hour	8-Hour
Auburn	2000	22	57	39
	2001	22	46	36
	2002	16	54	36
	2003	14	42	27
	2004	14	56	31
	2005	11	42	29
	2006	25	67	56
	2007	1	21	9
	2008	14	36	21
	2009	5	27	14
Roseville	2000	13	22	15
	2001	13	30	17
	2002	21	35	25
	2003	13	25	16
	2004	5	13	8
	2005	13	27	18
	2006	16	38	25
	2007	4	20	8
	2008	20	38	22
	2009	13	32	19
Sacramento Valley Air Basin Summary	2000	41	81	62
	2001	44	84	69
	2002	46	95	71
	2003	51	92	69
	2004	29	87	57
	2005	33	62	45
	2006	44	88	68
	2007	15	61	34
	2008	41	78	54
	2009	29	65	45

**Table 8.2**  
**2000-2009 PM<sub>10</sub>Trends**

<b>Station</b>	<b>Year</b>	<b>Days Above Standard</b>
<b>Roseville</b>	2000	11.3
	2001	23.7
	2002	6.1
	2003	6.1
	2004	0
	2005	5.7
	2006	5.7
	2007	0
	2008	6.0
	2009	0
<b>Sacramento Valley Air Basin Summary</b>	2000	42.8
	2001	49.9
	2002	41.0
	2003	30.6
	2004	79.5
	2005	42.3
	2006	53.3
	2007	36.4
	2008	68.7
	2009	18.4

### **Sensitive Receptors**

Elderly, children, and individuals with certain health concerns are more susceptible to the adverse effects of air pollution. Residential areas are considered sensitive receptors because residents tend to be at home for extended periods, which may result in sustained exposure to any pollutants in the vicinity.

Land uses in the immediate vicinity of the project site include rural residences, a church that operates a day care, and limited commercial activities. Development activities on the Orchard at Penryn project site could expose existing residents and children at the day care to increased air pollutant levels.

The project would add residents to the project area, creating a new population of sensitive receptors. However there are no existing sources of air pollution in the immediate project vicinity. As noted above, the nearest substantial mobile-source emissions is vehicle traffic on I-80, and the nearest stationary pollution source is two gas stations on Boyington Road and Penryn Road at the I-80 westbound on-ramps. All of these sources are located approximately 1,200 feet from the project site. At this distance, residents at the project site would not be exposed to substantial pollutant concentrations associated with these sources.

## 8.2 REGULATORY FRAMEWORK

### Federal Regulations

#### *Clean Air Act*

As required by the Federal Clean Air Act, the U.S. EPA established Ambient Air Quality Standards (AAQS) for six air pollutants: ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, suspended particulate matter, and lead. These standards represent the levels of air quality necessary to protect the public health and welfare with an adequate margin of safety. The Federal Clean Air Act requires states to classify air basins (or portions thereof) as either “attainment” or “non-attainment” with respect to whether the AAQS for each pollutant have been achieved. For areas designated as “non-attainment,” the Federal Clean Air Act requires states to prepare air quality plans containing emission reduction strategies. The federal AAQS are listed in *Table 8.3* along with the air quality standards set by California.

The U.S. EPA requires states to prepare State Implementation Plans (SIPs), which must demonstrate that attainment of the federal AAQS will be achieved, and that air quality will be maintained. The SIP is periodically updated to reflect the latest emissions inventories, planning documents, and air district rules and regulations. Failure to submit an acceptable SIP or to implement the SIP within the mandated time frame may result in restrictions in transportation funding and sanctions on stationary air pollution sources in the air basin.

The project area is located in the Sacramento Valley Air Basin, which is in severe non-attainment for federal ozone standards. The region was initially designated as “serious” non-attainment in 2004 based on the 8-hour ozone standard. The region was given a target attainment date of 2013. However, because the region must rely on longer-term emissions reduction strategies from state and federal programs, the 2013 date cannot be met. In 2008, CARB submitted a letter to U.S. EPA requesting a voluntary reclassification of the area from “serious” to “severe” non-attainment and an extension of the target attainment date to 2019. In 2009, the air districts in the Sacramento Valley Air Basin prepared the 2009 Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan to help meet this deadline.

**Table 8.3**  
**Ambient Air Quality Standards**

Pollutant (measurement)	Averaging Time	Standard	
		State <sup>1</sup>	Federal <sup>2</sup>
Carbon monoxide (ppm) <sup>3</sup>	8 hours	9	9
	1 hour	20	35
Nitrogen dioxide (ppm)	Annual mean	0.03	0.053
	1 hour	0.18	-- <sup>4</sup>
Ozone (ppm)	1 hour	0.09	--
	8 hours	0.07	0.075
Lead ( $\mu\text{g}/\text{m}^3$ ) <sup>5</sup>	Quarterly	--	1.5
	30 days	1.5	--

Pollutant (measurement)	Averaging Time	Standard	
		State <sup>1</sup>	Federal <sup>2</sup>
Particulate matter less than 10 microns in diameter ( $\mu\text{g}/\text{m}^3$ )	Annual mean	20	--
	24 hours	50	150
Particulate matter less than 2.5 microns in diameter ( $\mu\text{g}/\text{m}^3$ )	Annual mean	12	15
	24 hours	--	35
Sulfur dioxide (ppm)	Annual mean	--	0.03
	24 hour	0.04	0.14
	3 hour	--	0.50 <sup>6</sup>
	1 hour	0.25	--

## Notes:

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1-hour), nitrogen dioxide, suspended particulate matter (PM<sub>10</sub>), and visibility reducing particles are values that are not to be exceeded. The sulfur dioxide (24-hour), sulfates, Lake Tahoe carbon monoxide, lead hydrogen sulfide and vinyl chloride standards are not to be equaled or exceeded.
2. National standards, other than ozone and those based on annual averages or arithmetic means are not to be exceeded more than once a year. The ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than one.
3. ppm parts per million
4. -- no standard
5.  $\mu\text{g}/\text{m}^3$  micrograms per cubic meter
6. This is a secondary standard.

Source: California Air Resources Board

### **Hazardous Air Pollutant Program**

Under Title III of the Clean Air Act, U.S. EPA is required to promulgate national emissions standards for Hazardous Air Pollutants (HAP). These are airborne substances that are capable of causing short-term (acute) and/or long-term (chronic or carcinogenic) adverse human health effects. There are two categories of emissions standards - the first is technology-based standards which require implementation of Maximum Available Control Technologies to achieve the maximum feasible emission reductions. The second category is health-based standards which supplement the technology-based standards to avoid unacceptable health risks.

### **State Regulations**

#### **California Clean Air Act**

The State of California has established its own ambient standards for the criteria pollutants, which are presented with the federal AAQS in *Table 8.3*. The state AAQS are equal to or more stringent than their federal counterparts. State AAQS have also been established for certain pollutants not covered by the federal AAQS, such as hydrogen sulfide and vinyl chloride. Placer County has been designated as a non-attainment area for state AAQS for ozone and PM<sub>10</sub>, and is unclassified for CO and PM<sub>2.5</sub> (meaning there is not enough data to classify the region attainment or non-attainment for these pollutants). Placer County has been designated as an attainment area for all other criteria air pollutants.

### **California Air Resources Board**

The state legislature created the California Air Resources Board as a state regulatory agency directed towards ensuring high air quality across the state. To achieve this goal, the Air Resources Board uses a variety of regulatory tools including emission standards, air quality standards, control measures for toxic materials, and oversight of local air quality districts. CARB also conducts research and air quality monitoring, and assists individual businesses with meeting clean air standards.

To aid local air quality districts in the evaluation of proposed development projects, CARB directed the preparation of a computer modeling program that estimates the air pollutant emissions that could result from construction and operation of a project. The modeling program provides estimates of the pollutant emissions associated with new land development projects and evaluates the effectiveness of common mitigation measures and Best Available Control Technology in reducing project emissions. The current version of the modeling program is URBEMIS 2007 version 9.2.4. It is available for downloading at the following website: <http://www.urbemis.com/>

### **Local Regulations**

#### **Placer County Air Pollution Control District**

The Placer County Air Pollution Control District (APCD) adopts and enforces regulations to control emissions from stationary sources – which are all sources other than motor vehicles. Stationary sources can include non-specific sources associated with typical operation of a land use (for example, the use of gasoline powered lawn mowers and woodburning fireplaces in a residential subdivision) as well as individual pieces of equipment or machinery (such as a power generator or equipment used in a manufacturing process). Emissions from individual stationary sources are regulated through a permit process, while emissions from non-specific sources are typically regulated as part of the initial development approval process.

In order to evaluate stationary and area source emissions, the Placer County APCD has established the New Source Review Rule. This rule sets pollutant emissions limits listed in *Table 8.4*, and requires application of Best Available Control Technology for emissions sources that exceed these limits. Project emissions (as calculated by the URBEMIS 2007 program) that exceed threshold values could have a significant effect on regional air quality and the attainment of federal and state standards. The thresholds apply to both construction and operational air pollutant emissions.

**Table 8.4**  
**APCD Thresholds (pounds per day)**

<b>Air Contaminant</b>	<b>Operational Threshold</b>	<b>Cumulative Thresholds</b>
Reactive organic compounds (ROC/TOC)	82	10
Nitrogen oxides (NO <sub>x</sub> )	82	10
Sulfur oxides (SO <sub>x</sub> )	82	n/a
Particulate matter less than 10 microns in diameter (PM <sub>10</sub> )	82	n/a
Carbon monoxide (CO)	550	n/a

Placer County APCD Rule 225 establishes requirements related to wood burning devices. These requirements include emission standards, and requirements to provide educational information regarding the appropriate use of such devices and health effects from wood smoke. Section 302.2.4 limits installation of woodburning devices in multi-family developments to public areas, thus no woodburning devices may be installed in individual residential units within a multi-family development.

### ***Placer County General Plan***

The *Placer County General Plan* Air Quality section of the Natural Resources Element provides guidance in land use and development policies for implementation by the Placer County APCD. The following General Plan policies are applicable to the proposed project:

Goal 6.F To protect and improve air quality in Placer County.

Goal 6.G To integrate air quality planning with the land use and transportation planning process.

### ***Horseshoe Bar / Penryn Community Plan***

The *Horseshoe Bar/Penryn Community Plan* provides 19 General Community Goals which are applicable to the entire Plan area. The General Community Goal relevant to the analysis of impacts related to air quality is:

- ❖ Recognize that clean air and water are essential resources for maintaining a high quality of living, and ensure that these resources are maintained at acceptable levels.

In addition, the following goals of *Horseshoe Bar/Penryn Community Plan* Natural Resources Management element pertaining to air quality are applicable to the proposed project and to this chapter's analysis of the project's potential impacts to air quality:

Goal V.B.6.a.1 Recognize that clean air and water are essential resources for maintaining a high quality of living. Protect the high quality of air, water, and groundwater resources consistent with adopted federal, state, and local standards.

Goal V.B.6.a.2 Protect and improve air quality in the plan area.

Goal V.B.6.a.3 Integrate air quality planning with the land use and transportation planning process.

Appendix B of this Draft EIR provides an evaluation of the project's consistency with Community Plan policies adopted for the purpose of avoiding or reducing impacts related to air quality.

## **8.3 IMPACTS**

### **Significance Criteria**

As evaluated in the Initial Study, the project would have a less than significant impact with respect to the following significance criteria:

- ❖ Conflict with or obstruct implementation of the applicable air quality plan;

- ❖ Expose sensitive receptors to substantial pollutant concentrations; and
- ❖ Create objectionable odors affecting a substantial number of people.

The analysis below evaluates potentially significant project impacts related to air quality based on the following significance criterion:

- ❖ Violate any air quality standard.

The Initial Study also indicted that the project could “Result in a cumulatively considerable net increase of any criteria pollutant for which the region is non-attainment.” Analysis of the project’s potential impacts relative to this significance criterion is provided in **CHAPTER 14 CUMULATIVE IMPACTS**.

### Project Impacts

**IMPACT 8.1:** Violate Any Air Quality Standard During Project Construction

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**SIGNIFICANCE BEFORE MITIGATION:** ***SIGNIFICANT***

Mitigation Measures

*Proposed:* Mitigation Measures 8.1a and 8.1b

**Significance with Proposed Mitigation: Significant**

*Recommended:* Mitigation Measures 8.1c through 8.1f

**SIGNIFICANCE AFTER MITIGATION:** ***SIGNIFICANT AND UNAVOIDABLE***

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Completion of the site remediation work and construction of the proposed 150 multi-family residential units and associated infrastructure would generate air pollutant emissions, including dust from earth moving activities, vehicle exhaust, and off-gassing from pavement, architectural coatings, and other construction materials.

Site remediation to remove contaminated soils from approximately half of the project site and grading to prepare for project construction would occur concurrently. The Removal Action Workplan (RAW) [Wallace-Kuhl & Associates (WKA) 2008] describes the site remediation activities. In summary, 11,600 cubic yards of soil would be removed, primarily from the eastern portion of the project site, and taken offsite for disposal. The disposal site has not been finalized, but is likely to be either the Western Regional Sanitary Landfill approximately 15 miles driving distance from the project site or the Ostrom Landfill in Wheatland approximately 35 miles driving distance from the site. The RAW estimates that a total of 644 truckloads would be required to export all of the soil removed during site remediation. In addition, the Preliminary Grading Plan provides for grading cuts that total 31,547 cubic yards of soil and 43,577 cubic yards of fill. To accomplish the site grading, a total of 23,636 cubic yards of soil would be imported to the site – this includes 11,600 yards to replace the excavated soil as well as 12,036 yards needed to balance cuts and fills on the site. It is expected that a total of 1,313 truckloads would be required to import 23,636 cubic yards of soil.

To assess the project’s potential to contribute to violations of air quality standards, North Fork Associates modeled the air pollutant emissions associated with construction of the proposed project using the URBEMIS modeling program (version 9.2.4). *Table 8.5* summarizes the anticipated air pollutant emissions from site remediation and project construction, providing the maximum daily emissions for each pollutant in each phase. The site remediation and mass

grading phases are expected to overlap by 20 days; mass grading and fine grading phases are expected to overlap by five days; the paving and building construction phases are expected to overlap by two days; all other construction phases would run sequentially.

Emissions from site remediation were modeled using information contained in the RAW and its appendices. Specifically, Appendix G Transportation Plan identifies the anticipated schedule for excavation and offsite hauling. The Transportation Plan identifies two potential disposal sites for the excavated soil. The URBEMIS modeling was prepared using the more remote of the two disposal sites, with a round trip length of 70 miles. Truck trips to import soil for both the site remediation and the site grading were assumed to have a round trip length of 30 miles.

**Table 8.5**  
**Unmitigated Construction Air Pollutant Emissions (pounds per day)**

Construction Phase	Air Contaminant					
	ROG	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Site Remediation	10.0	132.63	49.11	0.16	114.51	27.68
Mass Grading	3.87	38.93	17.95	0.02	561.33	118.48
Fine Grading	2.85	23.48	12.82	0.00	97.68	21.24
Paving	4.16	20.34	13.13	0.01	1.65	1.5
Building Construction	3.87	18.72	21.96	0.02	1.33	1.18
Architectural Coating	184.42	0.10	1.85	0.00	0.02	0.01

During the site remediation phase, NO<sub>x</sub> emissions would exceed the Placer County APCD Thresholds. During the site remediation phase and both grading phases, PM emissions would exceed the Placer County APCD Thresholds. The period of greatest PM emissions would occur during the overlap between site remediation and mass grading. This is also the period of greatest NO<sub>x</sub> emissions. During the architectural coating phase, ROG emissions would exceed the thresholds. The ROG, NO<sub>x</sub> and PM emissions could contribute to violation of the applicable air quality standards and are significant impacts of the project.

To minimize ROG emissions, the project applicant has indicated that low-VOC-emitting products will be used in the architectural coating phase, as stipulated in *Mitigation Measure 8.1a*.

A substantial portion of the PM emissions are dust from earth-moving activities, while a small quantity of the PM emissions comes from vehicle exhaust. The majority of the NO<sub>x</sub> emissions come from vehicle exhaust. The RAW includes an Erosion Prevention and Sediment Control Plan, which will assist in minimizing dust emissions during site remediation. Implementation of the Erosion Prevention and Sediment Control Plan is stipulated in *Mitigation Measure 8.1b*. *Mitigation Measures 8.1c* through *8.1f* require the project applicant to implement additional measures to minimize air pollutant emissions throughout site remediation and construction. Some of these measures are included in the URBEMIS program, thus their effectiveness can be quantified. *Table 8.6* identifies the air pollutant emissions associated with site remediation and grading after implementation of *Mitigation Measure 8.1a* and the following requirements, which are listed in *Mitigation Measure 8.1c*:

- ❖ Apply soil stabilizers to inactive areas;
- ❖ Replace ground cover in disturbed areas quickly;
- ❖ Water exposed surfaces three times daily;
- ❖ Reduce speed on unpaved roads to less than 15 miles per hour; and
- ❖ Manage haul road dust by watering twice daily.

**Table 8.6**  
**Mitigated Construction Air Pollutant Emissions (pounds per day)**

Construction Phase	Air Contaminant					
	ROG	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Site Remediation	10.0	132.63	49.11	0.16	16.91	7.29
Mass Grading	4.44	47.68	20.86	0.04	57.64	13.29
Fine Grading	2.85	23.48	12.82	0.00	34.53	8.05
Paving	4.16	20.34	13.13	0.01	1.65	1.5
Building Construction	3.87	18.72	21.96	0.02	1.33	1.18
Architectural Coating	165.92	0.10	1.85	0.00	0.02	0.01

With implementation of the mitigation measures discussed above, PM<sub>10</sub> emissions in each individual phase and during the period of highest PM<sub>10</sub> emissions (the overlap between site remediation and mass grading) would be reduced to less than significant levels.

The mitigation measures discussed above would have no effect on NO<sub>x</sub> emissions. NO<sub>x</sub> emissions during the site remediation would exceed the APCD Thresholds. This is a significant and unavoidable impact of the proposed project.

While *Mitigation Measure 8.1a* would slightly reduce ROG emissions during the architectural coating phase, these emissions would still exceed the APCD Thresholds. This is a significant and unavoidable impact of the proposed project.

Emissions of NO<sub>x</sub> during site remediation and each construction phase other than architectural coatings and emissions of ROG during the architectural coatings phase would exceed the APCD Cumulative Thresholds. The project's contribution to cumulative impacts is evaluated in CHAPTER 14 CUMULATIVE IMPACTS.

**IMPACT 8.2: Violate Any Air Quality Standard During Project Operation**

**SIGNIFICANCE BEFORE MITIGATION:** *LESS THAN SIGNIFICANT*

Mitigation Measures: No mitigation measures are proposed or recommended.

**SIGNIFICANCE AFTER MITIGATION:** *LESS THAN SIGNIFICANT*

Air pollutant emissions would occur during project operation (occupation of the residences) through the use of motor vehicles, consumption of electricity, landscaping equipment, use of natural gas for heating devices (natural gas fireplaces and water heaters), individual barbeques,

and consumer products (e.g., cleaning supplies and personal products such as hair spray). North Fork Associates modeled the air pollutant emissions associated with operation of the proposed project using the URBEMIS modeling program (version 9.2.4). *Table 8.7* summarizes the anticipated air pollutant emissions from area sources and vehicle emissions associated with the project. To reflect seasonal variations in electricity and natural gas use, URBEMIS provides separate estimate for summer and winter emissions.

**Table 8.7**  
**Unmitigated Long-Term Air Pollutant Emissions (pounds per day)**

Source	Air Contaminant					
	ROG	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Summer</b>						
Area Sources	8.56	1.15	2.03	0.00	0.01	0.01
Vehicle Use	8.88	10.79	97.56	0.10	16.91	3.27
<b>Combined</b>	<b>17.44</b>	<b>11.94</b>	<b>99.59</b>	<b>0.10</b>	<b>16.92</b>	<b>3.28</b>
<b>Winter</b>						
Area Sources	8.49	1.96	0.83	0.01	0.07	0.07
Vehicle Use	9.68	15.49	108.59	0.09	16.91	3.27
<b>Combined</b>	<b>18.17</b>	<b>17.45</b>	<b>109.42</b>	<b>0.10</b>	<b>16.98</b>	<b>3.34</b>

All of the air pollutant emissions from project operation would remain below the APCD Thresholds, and the project is not expected to violate air quality standards. This impact is less than significant.

Operation of the project would cause emissions of ROG and NO<sub>x</sub> that exceed the APCD Cumulative Threshold. As noted in Impact 8.1, the project's contribution to cumulative impacts is evaluated in CHAPTER 14 CUMULATIVE IMPACTS.

## 8.4 MITIGATION MEASURES

### Violate Any Air Quality Standard During Project Construction

#### ***Proposed Mitigation***

**Mitigation Measure 8.1a:** The project applicant shall use low-VOC or no-VOC paints, finishes, and adhesives in all building construction.

**Mitigation Measure 8.1b:** During implementation of the RAW, the project applicant shall implement the Erosion Prevention and Sediment Control Plan included as Appendix H of the RAW and any other measures included in the grading permit. Upon completion of site remediation, the applicant shall obtain a tentative "No Further Action" letter from DTSC, and shall begin site work and grading to support project construction in accordance with the approved Improvement Plans. If areas disturbed by RAW implementation are not subject to site work and grading to support project construction within 90 days of completion of site remediation activities, the project applicant shall revegetate those areas.

**Recommended Mitigation**

**Mitigation Measure 8.1c:** Prior to the approval of Improvement Plans, the project applicant shall submit a Construction Emission/Dust Control Plan to the Placer County APCD. This plan must address the minimum Administrative Requirements found in sections 300 and 400 of APCD Rule 228, Fugitive Dust, and shall include the following requirements:

- A. Apply soil stabilizers to inactive areas;
- B. Replace ground cover in disturbed areas quickly;
- C. Water exposed surfaces three times daily;
- D. Reduce speed on unpaved roads to less than 15 miles per hour; and
- E. Manage haul road dust by watering twice daily.

**Mitigation Measure 8.1d:** Prior to the approval of Improvement Plans, the project applicant and/or prime contractor shall provide a plan to the Placer County APCD for approval by the APCD demonstrating that the heavy-duty (50 horsepower or greater) off-road vehicles to be used in site remediation and project construction, including owned, leased and subcontractor vehicles, will achieve a project-wide fleet average 20 percent NO<sub>x</sub> reduction and 45 percent particulate reduction compared to the most recent CARB fleet average. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available.

**Mitigation Measure 8.1e:** Prior to the approval of Improvement Plans, the project applicant shall submit an enforcement plan to the APCD for review. The enforcement plan shall provide for weekly evaluation of project-related on-and-off- road heavy-duty vehicle engine emission opacities, using standards as defined in California Code of Regulations, Title 13, Sections 2180 - 2194 and APCD Rule 202. An Environmental Coordinator who is CARB-certified to perform Visible Emissions Evaluations shall be hired by the prime contractor or property owner. The Environmental Coordinator shall routinely evaluate project related off-road and heavy duty on-road equipment emissions for compliance with this requirement. Operators of vehicles and equipment found to exceed opacity limits will be notified by APCD. Use of any such vehicle and/or equipment must cease immediately, and the equipment must be repaired within 72 hours.

**Mitigation Measure 8.1f:** The applicant shall include the following standard notes on the Improvement Plans and Grading Plan and shall comply with each note throughout site remediation and project construction:

1. The prime contractor shall submit to the District a comprehensive inventory (i.e. make, model, year, emission rating) of all the heavy-duty off-road equipment (50 horsepower or greater) that will be used an aggregate of 40 or more hours for site remediation and project construction. The inventory shall be updated, beginning 30 days after any initial work on site has begun, and shall be submitted on a

monthly basis throughout the duration of the project, except that an inventory shall not be required for any 30-day period in which no construction activity occurs. At least three business days prior to the use of subject heavy-duty off-road equipment, the project representative shall provide the District with the anticipated construction timeline including start date, and name and phone number of the property owner, project manager, and onsite foreman.

2. Construction equipment exhaust emissions shall not exceed District Rule 202 Visible Emission limitations. Operators of vehicles and equipment found to exceed opacity limits will be notified by APCD. Use of any such vehicle and/or equipment must cease immediately, and the vehicle and/or equipment must be repaired within 72 hours.
3. The contractor shall suspend all grading operations when fugitive dust exceeds Placer County APCD Rule 228 Fugitive Dust limitations. The prime contractor shall be responsible for having an individual who is CARB-certified to perform Visible Emissions Evaluations verify compliance with Rule 228 on a weekly basis. Fugitive dust must not exceed 40 percent opacity and must not go beyond the property boundary at any time. If lime or other drying agents are utilized to dry out wet grading areas they shall be controlled as to not to exceed Placer County APCD Rule 228 Fugitive Dust limitations.
4. The prime contractor shall suspend all grading operations when wind speeds (including instantaneous gusts) exceed 25 miles per hour and dust is impacting adjacent properties.
5. The contractor shall apply water to control dust a minimum of three times per day, as required by Rule 228 Fugitive Dust limitations, to prevent dust impacts offsite. Operational water truck(s) shall be onsite at all times to control fugitive dust. Construction vehicles leaving the site shall be cleaned to prevent dust, silt, mud, and dirt from being released or tracked offsite.
6. The prime contractor shall be responsible for keeping adjacent public thoroughfares clean of silt, dirt, mud, and debris, and shall "wet broom" the streets if silt, dirt, mud or debris is carried over to adjacent public thoroughfares. Dry mechanical sweeping is prohibited.
7. During construction, no open burning of removed vegetation shall be allowed. All removed vegetative material shall be either chipped onsite or taken to an appropriate disposal site.
8. During construction, traffic speeds on all unpaved surfaces shall be limited to 15 miles per hour or less.
9. During construction, the contractor shall minimize idling time to a maximum of 5 minutes for all diesel powered equipment.
10. The contractor shall use CARB ultra low diesel fuel for all diesel-powered equipment. In addition, low sulfur fuel shall be utilized for all stationary equipment.
11. The contractor shall utilize existing power sources (e.g., power poles) or clean fuel generators rather than temporary diesel power generators.

12. All onsite stationary equipment which is classified as 50 horsepower or greater shall either obtain a state-issued portable equipment permit or a Placer County APCD-issued portable equipment permit.

**Violate Any Air Quality Standard During Project Operation**

This impact is determined to be Less than Significant. No mitigation measures are required.

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