SECTION 2.0
AIR QUALITY ANALYSIS

The air quality analysis provided in this section evaluates the air quality impact level of significance associated with the construction, operation, and maintenance activities of the proposed Kroc Community Center (proposed project). The analysis contained herein focuses on criteria pollutants designated by the Federal Clean Air Act as well as greenhouse gas emissions. Relevant regulatory framework is used to determine the consistency of the proposed project with federal and state laws governing the regulations of air quality and the level of significance of the proposed project impacts to air quality. Mitigation measures are subsequently provided to air quality impacts identified to be potentially significant. The information used in this analysis is based on a review of relevant literature and technical reports (see Section 3.0, References, for a list of reference materials consulted). The conclusion reached in this analysis is supported by relevant air quality data and emission reports (Appendix A, *Wind and Climate Data*; Appendix B, *2005–2007 South Coast Air Quality Management District Air Quality Data*; and Appendix C, *URBEMIS 2007 Version 9.2.4 Output*).

2.1 POLLUTANTS AND EFFECTS

Criteria air pollutants are defined as pollutants that are hazardous for human health and are regulated by federal and state ambient air quality standards or criteria for outdoor concentrations. The federal and state standards have been set at levels above which concentrations would be harmful to human health. These standards are designed to protect the most sensitive persons from illness or discomfort. Criteria pollutants of concern include carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM) and lead (Pb). On April 2, 2007, the Supreme Court in *Massachusetts, et al. v. Environmental Protection Agency, et al.* (549 U.S. 1438; 127 S. Ct. 1438) ruled that the Clean Air Act gives the U.S. Environmental Protection Agency the authority to regulate emissions of greenhouse gases, including carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated gases such as hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6),[1] thereby legitimizing greenhouse gases as air pollutants under the Clean Air Act. A detailed description of the characteristics and effects of criteria pollutants and greenhouse gases are provided in the following sections.

Carbon Monoxide (CO). CO is a colorless and odorless gas formed by the incomplete combustion of fossil fuels. CO is emitted almost exclusively from motor vehicles, power plants, refineries, industrial boilers, ships, aircrafts, and trains. In urban areas, automobile exhaust accounts for the majority of CO emissions. CO is a non-reactive air pollutant that dissipates relatively quickly; therefore, ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions, including wind speed, topography, and atmospheric stability. CO produced by motor vehicle exhaust can be locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, such as situations at dusk in urban areas between November and February.[2] The highest levels of CO typically occur during the colder months of the year when inversion conditions are more frequent. CO has a higher binding affinity to hemoglobin than oxygen (O_2), so it can replace O_2 in the blood and cause a reduction in the blood's ability to transport O_2 to vital organs. Low CO concentrations can cause

[1] U.S. Supreme Court. 2 April 2007. *Massachusetts, et al., v. Environmental Protection Agency, et al.* 549 U.S. 1438; 127 S. Ct. 1438. Washington DC.

[2] Inversion is an atmospheric condition in which a layer of warm air traps cooler air near the surface of the earth and prevent the normal rising of surface air.

fatigue in healthy people and chest pain in people with heart disease. At moderate concentrations, angina, impaired vision, and reduced brain function may result. At high concentrations, CO can cause impaired vision and coordination, headaches, dizziness, confusion, or nausea. At very high concentrations, CO exposure can be fatal.

Ozone (O_3). O_3 is a colorless gas that is formed in the atmosphere when reactive organic gases, which include volatile organic compounds (VOCs) and nitrogen oxides (NO_x), react in the atmosphere in the presence of ultraviolet sunlight. The primary sources of VOCs and NO_x are automobile exhaust emissions and industrial emissions. Ideal conditions for O_3 formation occur during summer and early fall on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. O_3 is one of the main components of photochemical smog in urban areas. Health effects associated with exposure to O_3 include increased respiratory and cardiovascular disease; increased symptoms of respiratory illness such as cough, phlegm, and wheeze; decreased lung function; increase in bronchodilator usage; and increased daily mortalities.

Nitrogen Dioxide (NO_2). NO_2 is a brownish-red, highly reactive gas that plays a major role in the formation of ground-level O_3 and acid rain. NO_2 is produced in the atmosphere from the reaction of atmospheric oxygen (O_2) with nitric oxide (NO). NO_x collectively refers to both NO and NO_2. The main sources of NO_2 include fuel combustion in industry and motor vehicles. High concentrations of NO_2 can cause breathing difficulties and can result in a brownish-red cast to the atmosphere with reduced visibility. NO_2 is toxic to various animals as well as to humans, because it has the ability to react with water to form nitric acid in the eye, lung, mucus membranes, and skin. Epidemiological studies have shown associations between NO_2 concentrations and chronic pulmonary fibrosis and daily mortalities from respiratory and cardiovascular causes. Some increase in bronchitis in children (two and three years old) has also been observed at concentrations below 0.3 parts per million (ppm).

Sulfur Dioxide (SO_2). SO_2 is a colorless and pungent gas formed primarily by the combustion of sulfur-containing fossil fuels. Generally, the highest levels of SO_2 are found near large industrial complexes where coal and oil are used in power plants and industries. In recent years, SO_2 concentrations have been reduced due to the increasingly stringent controls placed on stationary source emissions of SO_2 and limits on the sulfur content of fuels. SO_2 causes its irritant effects by stimulating nerves in the lining of the nose and throat and the lung's airways. This causes a reflex cough, irritation, and a feeling of chest tightness, which may lead to narrowing of the airways. Acute respiratory symptoms and diminished ventilator function in children can be caused by SO_2 emissions, which can also damage plants and erode metals.

Particulate Matter. Particulate matter consists of very small liquid and solid particles suspended in air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter can be formed when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. Fine particulate matter, or $PM_{2.5}$, refers to particles that are 2.5 microns or less in diameter, roughly 1/28th the diameter of a human hair. PM_{10} refers to particles that are 10 microns or less in diameter, about 1/7th the thickness of a human hair. Sources of primary $PM_{2.5}$ emissions include from fuel combustion from motor vehicles, power generation, industrial facilities, residential fireplaces, and wood stoves. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases such as SO_2, NO_x, and VOCs. Major sources of PM_{10} include crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning activities; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions.

$PM_{2.5}$ and PM_{10} pose a greater health risk than larger-sized particles. When inhaled, small particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. A strong link between elevated particulate levels and premature deaths, hospital admissions, emergency room visits, and asthma attacks has been demonstrated;[3] particulate matter inhalations could also significantly reduce lung function growth in children.[4] Components of particulate matter can include substances such as lead, sulfates, and nitrates, which can cause lung damage directly. These substances can be absorbed into the blood stream and cause damage elsewhere in the body. Moreover, these substances can transport absorbed gases such as chlorides or ammonium into the lungs and cause injury. PM_{10} tends to collect in the upper portion of the respiratory system; whereas, $PM_{2.5}$ can penetrate deeper into the lungs and damage lung tissues. Suspended particulates also damage and discolor surfaces on which they settle and produce haze in the atmosphere which reduces regional visibility.

Lead (Pb). Pb in the atmosphere occurs as particulate matter. Main sources of Pb emissions include leaded gasoline, battery manufacture, paint, ink, ceramics, ammunition, and secondary lead smelters. Prior to 1978, mobile emissions were the primary source of atmospheric lead. After the phase-out of leaded gasoline between 1978 and 1987, secondary lead smelters, battery recycling, and manufacturing facilities became lead-emission sources of greater concern. Prolonged exposure to atmospheric lead poses a serious threat to human health. Health effects associated with lead exposure include gastrointestinal disturbances, anemia, kidney disease, and in severe cases, neuromuscular and neurological dysfunction. Infants and young children are particularly sensitive to even very low levels of Pb, and such exposure could result in decrements in neurobehavioral performance including intelligent quotient performance, psychomotor performance, reaction time, and growth.

Carbon Dioxide (CO_2). CO_2 is a colorless, odorless, and non-flammable gas that is the most abundant greenhouse gas in the earth's atmosphere after water vapor. CO_2 enters the atmosphere through natural process such as respiration and forest fires and through human activities such as the burning of fossil fuels (oils, natural gas, and coal) and solid waste, deforestation, and industrial processes. CO_2 absorbs terrestrial infrared radiation that would otherwise escape to space, and therefore, plays an important role in warming the atmosphere. CO_2 has a long atmospheric lifetime of up to 200 years, and is therefore, a more important greenhouse gas than water vapor, which has a residence time in the atmosphere of only a few days. CO_2 provides the reference point for the global warming potential (GWP) of other gases; thus, the GWP of CO_2 is equal to 1.

Methane (CH_4). CH_4 is a principal component of natural gas and consists of a single carbon atom bonded to four hydrogen atoms. It is formed and released to the atmosphere by biological processes from livestock and other agricultural practices and by the decay of organic waste in anaerobic environments such as municipal solid waste landfills. CH_4 is also emitted during the production and transport of coal, natural gas, and oil. CH_4 is about 21 times more powerful at warming the atmosphere than CO_2 (a GWP of 21). Its chemical lifetime in the atmosphere is approximately 12 years. The CH_4 relatively short atmospheric lifetime, coupled with its potency as a greenhouse gas, makes it a candidate for mitigating global warming over the near term. CH_4 can be removed from the atmosphere by a variety of processes such as the oxidation reaction with hydroxyl radicals, microbial uptake in soils, and reaction with chlorine atoms in the marine boundary layer.

[3] California EPA Air Resource Board. January 2004. *Recent Research Findings: Health Effects of Particulate Matter and Ozone Air Pollution, January 2004.* Available at: http://www.arb.ca.gov/research/health/fs/PM-03fs.pdf

[4] California EPA Air Resource Board. January 2004. *Recent Research Findings: Health Effects of Particulate Matter and Ozone Air Pollution, January 2004.* Available at: http://www.arb.ca.gov/research/health/fs/PM-03fs.pdf

Nitrous Oxide (N_2O). N_2O is a clear and colorless gas with a slightly sweet odor. N_2O has a long atmospheric lifetime (approximately 120 years) and heat trapping effects about 310 times more powerful than carbon dioxide on a per molecule basis (a GWP of 310). N_2O is produced by both natural and human-related sources. The primary anthropogenic sources of N_2O are agricultural soil management like soil cultivation practices, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuels, and production of adipic and nitric acids. The natural process of producing N_2O ranges from a wide variety of biological sources in soil and water, particularly microbial action in wet tropical forests.

Fluorinated Gases. Hydrofluorocarbons (HFCs), perfluorocarbons, and sulfur hexafluoride (SF_6) are synthetic, powerful greenhouse gases that are emitted from a variety of industrial processes, including aluminum production, semiconductor manufacturing, electric power transmission, magnesium production and processing, and the production of HFC-22. Fluorinated gases are being used as substitutes for ozone-depleting chlorofluorocarbons. Fluorinated gases are typically emitted in small quantities; however, they have high global warminig potentials.

2.2 REGULATORY FRAMEWORK

This regulatory framework identifies the federal and state laws that govern the regulation of air quality and must be considered by the City of Long Beach regarding decisions on projects that involve construction, operation, or maintenance activities that would result in air pollutant emissions.

The federal Clean Air Act (CAA) governs air quality in the United States and is administered by the U.S. Environmental Protection Agency (EPA). In addition to being subject to the requirements of the federal CAA, air quality in California is also governed by more stringent regulations under the California CAA, which is administered by the California Air Resources Board (CARB) at the state level, air quality management districts at the regional level, and air pollution control districts at the local level. Areas of control for the regional districts are set by CARB, which divides the state into air basins. These air basins are based largely on topography that limits air flow access or by county boundaries. The proposed project area is located in the City of Long Beach in the County of Los Angeles, California within the South Coast Air Quality Management District (SCAQMD) portion of the South Coast Air Basin (SCAB).

Federal

Federal Clean Air Act

The 1990 federal CAA requires that federally supported activities must conform to the State Implementation Plan (SIP), which has the purpose of attaining and maintaining the National Ambient Air Quality Standards (NAAQS). Section 176(c) of the CAA as amended in 1990, established the criteria and procedures by which the Federal Highway Administration (Title 23 USC), the Federal Transit Administrations, and metropolitan planning organizations determine the conformity of federally funded or approved highway and transit plans, programs, and projects to SIPs.[5] The provisions of the Code of Federal Regulations Title 40 Parts 51 and 93[6] apply in all non-attainment and maintenance

[5] U.S. Environmental Protection Agency. 10 November 2008. *1990 Clean Air Act.* Available at: http://www.epa.gov/air/caa/

[6] U.S. Environmental Protection Agency. 29 October 2008. *CFR Title 40: Protection of the Environment.* Available at: http://www.epa.gov/lawsregs/search/40cfr.html

areas for transportation-related criteria pollutants for which the area is designated as non-attainment or has a maintenance plan.

The U.S. EPA sets NAAQS. Existing national standards are shown in Table 2.2-1, *Ambient Air Quality Standards*, along with state standards. In July 1997, the U.S. EPA promulgated stricter standards for ozone (O_3) and fine particulate matter ($PM_{2.5}$); however, deadlines for attaining the standards were extended over original proposals, with up to 15 years allowed for attaining the $PM_{2.5}$ standard. In 2006, the U.S. EPA revised the air quality standards for particulate matter and tightened the 24-hour $PM_{2.5}$ standard from 65 micrograms per cubic meter ($\mu g/m^3$) to 35 $\mu g/m^3$ and retained the 1997 annual $PM_{2.5}$ standard at 15 $\mu g/m^3$. The U.S. EPA also decided to retain the 1997 24-hour PM_{10} standard of 150 $\mu g/m.^3$ In addition, EPA revoked the annual PM_{10} standard because available evidence did not suggest a link between long-term exposure to PM_{10} and health problems. In 2008, the U.S. EPA introduced a new 8-hour standard for O_3 of 0.075 ppm; however, the 1997 standard of 0.08 ppm for O_3 will remain in place for implementation purposes until the U.S. EPA finalizes rulemaking to address the transition from the 1997 O_3 standard to the 2008 O_3 standard.

TABLE 2.2-1
AMBIENT AIR QUALITY STANDARDS

	National		State
Air Pollutant	**Primary**	**Secondary**	**Standard**
Ozone (O_3)	0.08 ppm, 8-hr avg. 0.12 ppm, 1-hr avg.[1]	0.08 ppm, 8-hr ave. 0.12 ppm, 1-hr avg.[1]	0.09 ppm, 1-hr avg. 0.070 ppm, 8-hr avg.
Carbon monoxide (CO)	9 ppm, 8-hr avg. 35 ppm, 1-hr avg.	None	9.0 ppm, 8-hr avg. 20 ppm, 1-hr avg.
Nitrogen dioxide (NO_2)	0.053 ppm, annual avg.	0.0534 ppm, annual avg.	0.030 ppm, annual avg. 0.18 ppm, 1-hr avg.
Sulfur dioxide (SO_2)	0.03 ppm, annual avg. 0.14 ppm, 24-hr avg.	0.50 ppm, 3-hr avg.	0.25 ppm, 1-hr 0.04 ppm, 24-hr avg.
Particulate matter (PM_{10})	150 $\mu g/m,^3$ 24-hr avg.	150 $\mu g/m,^3$ 24-hr avg.	50 $\mu g/m,^3$ 24-hr avg. 20 $\mu g/m,^3$ annual avg.
Particulate matter ($PM_{2.5}$)	35 $\mu g/m,^3$ 24-hr avg. 15 $\mu g/m,^3$ annual avg.	35 $\mu g/m,^3$ 24-hr avg. 15 $\mu g/m,^3$ annual avg.	12 $\mu g/m,^3$ annual avg
Sulfates (SO_4)	—	—	25 $\mu g/m,^3$ 24-hr avg.
Lead (Pb)	1.5 $\mu g/m,^3$ calendar quarterly average	1.5 $\mu g/m,^3$ calendar quarterly average	1.5 $\mu g/m,^3$ 30-day avg.
Hydrogen sulfide (H_2S)	—	—	0.03 ppm, 1-hr avg.
Vinyl chloride	—	—	0.01 ppm, 24-hr avg.
Visibility-reducing particles	—	—	Extinction co-efficient of 0.23 per kilometer — visibility of 10 miles or more due to particles when relative humidity is less than 70 percent. (8-hr avg.)

NOTES: ppm = parts per million by volume; avg. = average; µg/m3 = micrograms per cubic meter
1. On 15 June 2005, the U.S. EPA revoked the 1-hr O_3 standard in all areas except the 8-hr ozone nonattainment areas.

SOURCE: U.S. EPA and California Air Resources Board. 2008. *Ambient Air Quality Standards*. Available at: http://epa.gov/air/criteria.html

The 1990 amendments to the federal CAA divide the nation into five categories of planning regions, depending on the severity of their pollution, and set new timetables for attaining the national ambient air quality standards. The categories range from marginal to extreme. Attainment deadlines are from 3 to 20 years, depending on the category. Areas with more serious pollution are subject to more prescribed requirements and are given longer to attain the standard. The requirements are designed to bring areas into attainment by their specified attainment dates. The state must submit enforceable commitments to develop and adopt contingency measures to be implemented if the anticipated technologies do not achieve planned reductions.

The U.S. EPA can withhold certain transportation funds from states that fail to comply with the planning requirements of the federal CAA. If a state fails to correct these planning deficiencies within two years of federal notification, the U.S. EPA is required to develop a federal implementation plan for the identified non-attainment area or areas.

State

California Clean Air Act

The California CAA of 1988 requires all air-pollution control districts in the state to endeavor to achieve and maintain state ambient air quality standards for O_3, CO, and NO_2 by the earliest practicable date and to develop plans and regulations specifying how they will meet this goal. There are no planning requirements for the state PM_{10} standard.

The CARB, which became a part of the California Environmental Protection Agency in 1991, is responsible for meeting the state requirements of the federal CAA, administering the California CAA, establishing the California Ambient Air Quality Standards (CAAQS; Table 2.2-1), and overseeing the functions of local air pollution control districts and air quality management districts, which in turn administer the issuance of air quality at the regional and county levels.

The California CAA, as amended in 1992, requires all air districts in the state to endeavor to achieve and maintain the CAAQS, which are generally stricter than national standards for the same pollutants and incorporate additional standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particles. The California CAA requires CARB to designate areas with California as either attainment or non-attainment for each criteria pollutant based on whether the CAAQS have been achieved. Under the California CAA, areas are designated as non-attainment for a pollutant if air quality data shows that a state standard for the pollutant is violated at least once during the previous three calendar years. Exceedences that are affected by highly irregular or infrequent events are not considered violations of a state standard and are not used as a basis for designating areas as non-attainment. In addition, there is no penalty for non-attainment under the California CAA.

Assembly Bill 1493

Recognizing "global warming is a matter of increasing concern for public concern and the environment in the state" and would "impose [many] compelling and extraordinary impacts" on California, Assembly Bill 1493 Vehicular Emissions: Greenhouse Gases (AB 1493), was signed by the Governor on June 22, 2002. It requires CARB to "develop and adopt, by January 1, 2005, regulations that achieve the maximum feasible reduction of greenhouse gases emitted from passenger vehicles and light-duty trucks and any other vehicles determined by [CARB] to be vehicles whose primary use is noncommercial personal transportation in the state."[7] In addition, AB 1493 requires CARB to consider socioeconomic impacts, maximum cost-effective technologies, maximum flexibility to automobile manufacturers, and other alternatives when it develops and adopts regulations.[8]

Executive Order S-3-05

On June 1, 2005, Governor Arnold Schwarzenegger signed Executive Order S-3-05. Recognizing California is particularly vulnerable to the impacts of climate change, the executive order calls for "a reduction of [greenhouse gas] emissions to 2000 levels by 2010; a reduction of GHG emissions to 1990 levels by 2020; and a reduction of GHG emissions to 80% below 1990 levels by 2050."[9] The executive order directs the Cal/EPA secretary to coordinate and oversee efforts from multiple agencies (i.e., Secretary of the Business, Transportation and Housing Agency, Secretary of the Department of Food and Agriculture, Secretary of the Resources Agency, Chairperson of the Air Resources Board, Chairperson of the Energy Commission, and President of the Public Utilities Commission) to reduce greenhouse gas emissions to achieve the target levels. In addition, the Cal/EPA secretary is responsible for submitting biannual reports to the governor and state legislature that outline: (1) progress made toward reaching the emission targets, (2) impacts of global warming on California's resources, and (3) measures and adaptation plans to mitigate these impacts. To further ensure the accomplishment of the targets, the secretary of Cal/EPA would create and lead a climate action team made up of representatives from agencies listed above to implement global warming emission reduction programs and report on the progress made toward meeting the statewide greenhouse gas targets established in this executive order. In December 2005, the first report was released and identified that "the climate change emission reduction targets [could] be met without adversely affecting the California economy," and "when all the strategies are implemented, those underway and those needed to meet the Governor's targets, the economy will benefit."[10]

Assembly Bill 32: Global Warming Solutions Act of 2006

Signed by Governor Arnold Schwarzenegger in September 2006, AB 32, Global Warming Solutions Act, requires a statewide commitment and effort to reduce greenhouse gas emissions to 2000 levels by 2010 (11 percent below business as usual), to 1990 levels by 2020 (25 percent below business as usual), and 80 percent below 1990 levels by 2050. This intended reduction in greenhouse gas emissions will be accomplished with an enforceable statewide cap on greenhouse gas emissions, which will be phased in 2012. To effectively implement the cap, AB 32 requires CARB to develop appropriate regulations and establish a mandatory reporting system to track and monitor global warming emissions levels from stationary sources. In response to AB 1493, AB 32 provides that regulations adopted in AB 1493 should be used to address greenhouse gas emissions from vehicles. However, AB 32 also includes language insisting that if AB 1493 regulations cannot be implemented, then CARB shall develop new regulations to control vehicle GHG emissions under the authorization of AB 32. Moreover, under the bill, CARB needs to use the following four principles when implementing the cap:

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[7] California Assembly Bill 1493. 2002. Chapter 200. Available at: http://www.newamerica.net/files/CA%20LEV%20ab1493.pdf

[8] California Assembly Bill 1493. 2002. Chapter 200. Available at: http://www.newamerica.net/files/CA%20LEV%20ab1493.pdf

[9] State of California. 2005. Executive Order S-3-05. Sacramento, CA.

[10] State of California. 2005. Executive Order S-3-05. Sacramento, CA.

- Distribute benefits and costs equitably;
- Ensure that there are no direct, indirect, or cumulative increases in air pollution in local communities;
- Protect entities that have reduced their emissions through actions prior to this regulatory mandate; and
- Allow for coordination with other states and countries to reduce emissions.[11]

This bill is the first statewide policy in the United States to mitigate greenhouse gas emissions and include penalties for non-compliance. Consistent with goals and targets set by other actions taking place at the regional and international levels, AB 32 sets precedence in inventorying and reducing greenhouse gas emissions.

Senate Bill 1368

Signed by Governor Arnold Schwarzenegger in September 2006, Senate Bill (SB) 1368, Greenhouse Gas Emissions Performance Standard for Major Power Plants Investments, establishes important performance standards for new long-term financial investments in electricity generation in California and much of the Western United States.[12] SB 1368 requires the California Energy Commission (CEC) and California Public Utility Commission (CPUC) to establish a greenhouse gas emission performance standard for base-load generation from investor-owned utilities by February 1, 2007, and adopt regulations to implement and enforce this performance standard. Similarly, CEC is required to establish a similar standard for municipal utilities by June 30, 2007. The statute states that upon establishment of the greenhouse gas standards, any generation assets of a California utility must immediately comply with the standards. These standards cannot exceed the greenhouse gas emission rate from a base-load combined-cycle, natural gas-fired plant. The legislation further requires that all electricity provided to California, including imported electricity, must be generated from plants that meet the standards set by CPUC and the CEC.

Executive Order S-20-06

On October 17, 2006, Governor Arnold Schwarzenegger signed Executive Order S-20-06, which calls for continued efforts and coordination among state agencies on the implementation of greenhouse gas emission reduction policies and AB 32 and Health and Safety Code (Division 25.5) through the design and development of a market-based compliance program.[13] In addition, Executive Order S-20-06 requires the development of greenhouse gas reporting and reduction protocols and a multi-state registry through joint efforts among the CARB, the Cal/EPA, and the California Climate Action Registry. Economic analysis, including cost-effectiveness analysis, shall be used to develop a plan, by June 1, 2008, that will incentivize market-based mechanisms on reducing greenhouse gas emissions.[14]

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[11] State of Califonia. 27 September 2006**.** *AB 32: Global Warming Solutions Act.* Available at: http://www.leginfo.ca.gov/pub/05-06/bill/asm/ab_0001-0050/ab_32_bill_20060927_chaptered.pdf

[12] California Energy Commission. 29 September 2006. *SB 1368: Greenhouse Gas Emissions Performance Standard for Major Power Plant Investments*. Available at: http://www.energy.ca.gov/emission_standards/documents/sb_1368_bill_20060929_chaptered.pdf

[13] State of California. 2006. Executive Order S-20-06. Sacramento, CA.

[14] State of California. 2006. Executive Order S-20-06. Sacramento, CA.

California Senate Bill 97

Approved by Governor Arnold Schwarzenegger on August 24, 2007, California SB 97 is designed to work in conjunction with the State of California Environmental Quality Act Guidelines (State CEQA Guidelines) and the AB 32. Pursuant to the State CEQA Guidelines, the Office of Planning and Research (OPR) is required to prepare for and develop proposed guidelines for implementation of CEQA by public agencies. Pursuant to the AB 32, the CARB is required to monitor and regulate emission sources of greenhouse gases that cause global warming in order to reduce greenhouse gas emissions. "SB 97 requires OPR, by July 1, 2009, to prepare, develop, and transmit to the [CARB] guidelines for the feasible mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions, as required by CEQA, including, but not limited to, effects associated with transportation or energy consumption."[15] By January 1, 2010, CARB is required to certify and adopt those guidelines. In addition, the OPR and CARB are required to periodically update the guidelines to incorporate new information or criteria established by the CARB pursuant to the AB 32. Although SB 97 exempts transportation projects funded under the Highway Safety, Traffic Reduction, Air Quality and Port Security Bond Act of 2006, and projects funded under the Disaster Preparedness and Flood Prevention Bond Act of 2006, it would apply retroactively for any environmental documents, including Environmental Impact Reports, Negative Declarations, Mitigated Negative Declarations, or other documents required by CEQA that have not been certified or adopted by the CEQA lead agency by January 1, 2010.

Regional

South Coast Air Quality Management District

The SCAQMD, which monitors air quality within the project area, has jurisdiction over an area of approximately 10,743 square miles and a population of over 16 million. The 1977 Lewis Air Quality Management Act (Act) created SCAQMD to coordinate air quality planning efforts throughout southern California. This Act merged four county air pollution agencies into one regional district to improve air quality in southern California. SCAQMD is responsible for monitoring air quality as well as planning, implementing, and enforcing programs designed to attain and maintain Federal and State Ambient Air Quality Standards in the district. In addition, SCAQMD is responsible for establishing stationary source permitting requirements and for ensuring that new, modified, or related stationary sources do not create net emission increases.

On a regional level, SCAQMD and SCAG have responsibility under state law to prepare the Air Quality Management Plan (AQMP), which contains measures to meet state and federal requirements. When approved by CARB and the U.S. EPA, the AQMP becomes part of the SIP.

The Final 2007 AQMP was adopted by SCAQMD on June 1, 2007.[16] On September 27, the 2007 AQMP was adopted by CARB for inclusion in the SIP. The 2007 AQMP, which is jointly prepared by SCAQMD, CARB, and SCAG, focuses on O_3 and $PM_{2.5}$ emissions. The 2003 AQMP, which was adopted by SCAQMD on August 1, 2003, was consistent with and built upon the approaches taken in the 1997 AQMP and the 1999 amendments to the attainment of the federally enforceable O_3 SIP for the basin. In addition, the 2003 AQMP called for additional emission reductions beyond what was specified in the 1997 and 1999 plans.

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[15] Office of Planning and Research. 24 August 2007. *Senate Bill No. 97, Chapter 185*. Available at: http://www.opr.ca.gov/ceqa/pdfs/SB_97_bill_20070824_chaptered.pdf

[16] South Coast Air Quality Management District. 1 June 2007. *2007 Air Quality Management Plan*. Diamond Bar, CA.

Local

City of Long Beach General Plan, Air Quality Element

The proposed project area is located within the City of Long Beach; therefore, development in the area is governed by the goals, policies, and implementation measures adopted in the City of Long Beach General Plan.[17] The proposed project would be expected to be consistent with the City of Long Beach land use designations for the area and would not be expected to result in a change to the population growth assumptions used by SCAQMD for attainment planning.[18] The policy and implementation measures that are relevant to the proposed project that contribute toward preventing and mitigating air pollution include the following:

Policy 2.1.2 *Reduced Vehicle Miles Traveled*

- Policy 2.1.2. Use incentives, regulations, and transportation demand management in cooperation with other jurisdiction in the SCAB, to reduce vehicle miles traveled.

- Implementation Program 2.1.2.1. Encourage the use of telecommuting and/or teleconferencing systems by business employees where operational costs are acceptable.

- Implementation Program 2.1.2.2. Promote trip reduction programs, such as carpool incentives, vanpools, telecommuting, and free transit passes, among City of Long Beach employees to set an example for private employers.

- Implementation Program 2.1.2.5. Encourage City of Long Beach employee participation in the Telework Facilities Exchange Program, sponsored by the League of California Cities, Institute of Self Government.

Policy 2.4 *Non-Motorized Means of Transport*

- Policy 2.4.1. Promote convenient and continuous bicycle paths and pleasant pedestrian environments that will encourage non-motorized travel within the City of Long Beach.

- Implementation Program 2.4.1.3. Ensure that all new development is designed and constructed to facilitate and encourage travel by carpool, vanpool, transit, bicycle, and foot.

- Implementation Program 2.4.1.8. Provide convenient, secure bicycle parking facilities at public buildings, shopping centers, employment and activity centers, and multi-family developments.

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[17] City of Long Beach, Department of Development Services. Accessed 19 September 2008. *City of Long Beach General Plan*. Available at: http://www.lbds.info/

[18] City of Long Beach Department of Planning and Building. December 1996. *City of Long Beach General Plan, Air Quality Element*. Long Beach, CA.

- Implementation Program 2.4.1.10. Ensure that pedestrian walkways are safe, convenient, and aesthetically appealing, especially at major activity centers.

Policy 7.1 *Energy Consumption*

- Policy 7.1. Reduce energy consumption through conservation improvements and requirements.

- Implementation Program 7.1.2. Reduce overall energy use in local government facilities.

- Implementation Program 7.1.4. Encourage the incorporation of energy conservation features in the design of all new construction.

- Implementation Program 7.1.5. Encourage the installation of conversation devices and low energy-using / water-consumption appliances in new and existing development.

- Implementation Program 7.1.7. Support efforts to reduce greenhouse gas emissions that diminish the stratospheric ozone layer.

2.3 EXISTING AIR QUALITY CONDITIONS

The proposed project area is located in the County of Los Angeles portion of the SCAB, which is composed of a 6,745-square-mile area encompassing all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. The analysis of existing conditions related to air quality includes an air pollution climatology of SCAB, a local climate summary of the proposed project area, and a summary of pollutant levels prior to implementation of each component of the proposed project. All of the proposed project components are located within SCAB; therefore, all air quality data and analyses are presented as an aggregate of the entire proposed project area. In addition, this section describes sensitive receptors in the vicinity of the proposed project site that need to be taken into consideration in the evaluation of impacts.

2.3.1 Regional Climate

SCAB is the under the jurisdiction of the SCAQMD and is in an area of high air pollution potentials due to its climate and topography. The climate of the proposed project area (i.e., SCAB) is characterized by warm summers, mild winters, infrequent rainfalls, light winds, and moderate humidity. This mild climatological pattern is interrupted infrequently by extremely hot summers, winter storms, or Santa Ana winds. The SCAB is a coastal plain bounded by the Pacific Ocean to the west; the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east; and the San Diego County line to the south. During the dry season, the Eastern Pacific High Pressure Area (a semi-permanent feature of the general hemispheric circulation pattern) dominates the weather over much of Southern California, resulting in a mild climate tempered by cool sea breezes with light average wind speed. High mountains surround the rest of the SCAB perimeter, contributing to the variation of rainfall, temperature, and winds in the SCAB.

The SCAB frequently experiences temperature inversions, a condition characterized by an increase in temperature with an increase in altitude. In a normal atmosphere, temperature decreases with altitude. In a temperature inversion condition, as pollution rises, it reaches an area where the ambient temperature exceeds the temperature of the pollution, thereby limiting vertical dispersion of air pollutants and causing the pollution to sink back to the surface, trapping it close to the ground. During the summer, the interaction between the ocean surface and the lowest layer of the atmosphere creates a marine layer. With an upper layer of warm air mass over the cool marine layer, air pollutants are prevented from dispersing upward. Additional air quality problems in the SCAB can be attributed to the bright sunshine, which causes a reaction between hydrocarbons and oxides of nitrogen to form ozone. Peak ozone concentrations in the SCAB over the past two decades have occurred at the base of the mountains around Azusa and Glendora in the County of Los Angeles and at the crestline in the mountain area above the City of San Bernardino. Both the number of days the standards were exceeded and the peak ozone concentrations decreased everywhere in the SCAB throughout the 1990s. During the fall and winter, the greatest pollution problems are CO and NO_x emissions, which are trapped and concentrated by the inversion layer. CO concentrations are generally worse in the morning and late evening (around 10:00 p.m.). Since CO is produced almost entirely from automobiles, the highest CO concentrations in the SCAB are associated with heavy traffic. In the morning, CO levels are relatively high due to cold temperatures and the large number of cars traveling. High CO levels during the late evenings are a result of stagnant atmospheric conditions trapping CO in the area. However, CO concentrations have dropped significantly throughout the SCAB as a result of strict new emission controls and reformulated gasoline sold in winter months.

2.3.2 Local Climate

The mountains and hills within the SCAB contribute to the variation of rainfall, temperature, and winds throughout the region. The annual average high temperature in the proposed project area and its vicinity is 74 degrees Fahrenheit (°F) and the annual average low temperature in the proposed project area and its vicinity is 55 °F (Appendix A). The annual average wind speed within the proposed project area and its vicinity, as recorded at the Long Beach Airport Automated Surface Observation System (approximately 2.3 miles northeast of the proposed project site at 4100 Donald Douglas Drive, Long Beach, California 90808), is approximately 5.1 miles per hour (MPH)[19] and it blows predominantly from the westerly direction (Appendix A).[20] Severe weather is uncommon in the SCAB, but strong offshore easterly winds known as the Santa Ana winds can reach 25 to 35 MPH below the passes and canyons. During the spring and summer months, air pollution is moved out of the region through mountain passes or is lifted by the warm vertical currents produced by the heating of the mountain slopes. From the late summer through the winter months, because of the average lower wind speeds of approximately 3.8 MPH in the proposed project area and its vicinity,[21] air contaminants do not readily disburse, thus trapping air pollutions in the area.

The annual average of total precipitation in the proposed project area is approximately 12 inches, which occurs mostly during the winter and is relatively infrequently during the summer (Appendix A).[22] Precipitation averages approximately 7.2 inches during the winter (December, January, and

[19] Western Regional Climate Center. Accessed 19 September 2008. *California – Average Wind Speed – MPH, Station, Long Beach Airport ASOS (KLGB) (1996-2006)*. Available at: http://www.wrcc.dri.edu/htmlfiles/westwind.final.html

[20] South Coast Air Quality Management District. June 2007. *Draft Air Quality Management Network Plan, Quality Assurance Site Information for South Long Beach*. Page B-149 through B-152. Culver City, CA.

[21] Western Regional Climate Center. Accessed 19 September 2008. *California – Average Wind Speed – MPH, Station, Long Beach Airport ASOS (KLGB) (1996-2006)*. Available at: http://www.wrcc.dri.edu/htmlfiles/westwind.final.html

[22] Western Regional Climate Center. 19 September 2008. *Long Beach WSCMO, California Period of Record General Climate Summary – Precipitation*. Available at: http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca5085

February), approximately 2.8 inches during the spring (March, April, and May), 1.8 inches during fall (September, October, and November), and 0.15 inch during the summer (June, July, and August).[23]

2.3.3 Existing Air Monitoring Data

The proposed project area is located in the City of Long Beach. Emissions are generated daily from adjacent land uses and facilities by landscape maintenance equipment, space and water heating, and vehicle trips to and from the proposed project area and its vicinity.

Existing air quality within the Long Beach vicinity is characterized by a mix of local emission sources that include stationary activities, such as space and water heating, landscape maintenance, and consumer products, and mobile sources, which include primarily automobile and truck traffic. Motor vehicles are the primary source of pollutants within the proposed project vicinity, because they have the potential to generate elevated localized levels of CO, termed as CO hotspots. Section 9.4 of SCAQMD's *CEQA Air Quality Handbook* identifies CO as a localized problem requiring additional analysis when a proposed project is likely to expose sensitive receptors to CO hotspots.[24]

The SCAQMD has divided the SCAB into Source Receptor Areas (SRAs), based on similar meteorological and topographical features. The proposed project site is located in SCAQMD's SRA 4, South Los Angeles County Coastal,[25] which is served by the South Long Beach (Station No. 077) and North Long Beach (Station No. 072) Monitoring Stations. Criteria pollutants monitored at both stations include PM_{10}, $PM_{2.5}$, and Pb. In addition, the North Long Beach Monitoring Station monitors CO, O_3, NO_2, and SO_2. A summary of the ambient air quality data in the project vicinity recorded at the North Long Beach Monitoring Station from 2005 to 2007 and the applicable state standards are shown in Table 2.3.3-1, *Summary of 2005–2007 Ambient Air Quality Data in the Proposed Project Vicinity*). Background CO concentration in the proposed project area is established because CO concentrations are typically used as an indicator of the conformity with CAAQS, and estimated changes in CO concentrations generally reflect operational air quality impacts associated with the project. The highest reading of the CO concentrations over the past three years is defined by SCAQMD as the background level. A review of data from the North Long Beach Monitoring Station from 2005 to 2007 period indicates that the highest readings of 1- and 8-hour background CO concentrations are approximately 4 and 3.5 ppm, respectively. The existing 1- and 8-hour background concentrations do not exceed the state CO standards of 20 ppm and 9.0 ppm, respectively. In addition, criteria pollutants NO_2 and SO_2 did not exceed the CAAQS during the 2005 through 2007 period. The 1- and 8- hour state standards of O_3 were not exceeded during 2005 and 2006, but were exceeded once in 2007. The annual state standards for PM_{10} and $PM_{2.5}$ were exceeded numerous times during the 2005–2007 time period. A summary of the SCAQMD air quality data recorded at the North Long Beach monitoring station from 2005 to 2007 is included in Appendix B.[26]

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[23] Western Regional Climate Center. 19 September 2008. *Long Beach WSCMO, California Period of Record General Climate Summary – Precipitation*. Available at: http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca5085

[24] South Coast Air Quality Management District. 1993. *CEQA Air Quality Handbook*. Diamond Bar, CA.

[25] South Coast Air Quality Management District. 1999. *South Coast Air Quality Management District*. Available at: http://www.aqmd.gov/map/MapAQMD2.pdf

[26] South Coast Air Quality Management District. Accessed 19 September 2008. *Historical Data by Year*. Available at: http://www.aqmd.gov/smog/historicaldata.htm

TABLE 2.3.3-1
SUMMARY OF 2005–2007 AMBIENT AIR QUALITY DATA IN THE PROPOSED PROJECT VICINITY

Pollutants	Pollutant Concentrations and Standards	Number of Days Above State Standard		
		2005	2006	2007
Ozone	Maximum 1-hr Concentration (ppm)	0.09	0.08	0.10
	Days > 0.09 ppm (State 1-hr standard)	0	0	1
	Maximum 8-hr Concentration (ppm)	0.07	0.06	0.07
	Days > 0.07 ppm (State 8-hr standard)	0	0	1
Carbon Monoxide	Maximum 1-hr Concentration (ppm)	4	4	3
	Days > 20 ppm (State 1-hour standard)	0	0	0
	Maximum 8-hr Concentration (ppm)	3.5	3.4	2.6
	Days > 9.0 ppm (State 8-hr standard)	0	0	0
Nitrogen Dioxide	Maximum 1-hr Concentration (ppm)	0.14	0.10	0.11
	Days > 0.18 ppm (State 1-hr standard)	0	0	0
PM_{10}	Maximum 24-hr Concentration ($\mu g/m^3$)	66	78	75
	Days > 50 $\mu g/m^3$ (State 24-hr standard)	5	6	5
$PM_{2.5}$	Maximum 24-hr Concentration ($\mu g/m^3$)	54	59	83
	Exceed State Standard (12 $\mu g/m^3$ Annual Arithmetic Mean)?	Yes	Yes	Yes
Sulfur Dioxide	Maximum 24-hr Concentration (ppm)	0.01	0.01	0.01
	Days > 0.25 ppm (State 24-hr standard)	0	0	0

NOTE: At the time this technical report was written, 2008 data had not been released.
SOURCE: South Coast Air Quality Management District. Accessed 19 September 2008. *Historical Data by Year*. Available at: http://www.aqmd.gov/smog/historicaldata.htm

2.3.4 Sensitive Receptors

The proposed project would be located in the City of Long Beach, near existing residences and commercial facilities. Land uses identified to be sensitive receptors by SCAQMD in the CEQA Handbook include long-term health care facilities, rehabilitation centers, and convalescent centers. People with compromised immune systems may be exposed to emissions released from the construction and operation of the proposed project. The greatest potential for exposure of sensitive receptors to air contaminants would occur during the temporary construction phase, when potentially contaminated soil would be uncovered and equipment would be used for site grading, materials delivery, and building construction.

Exposure to potential emissions would vary substantially from day to day, depending on the amount of work being conducted, the weather conditions, the location of receptors, and the length of time that receptors would be exposed to air emissions. The construction phase emissions estimated in this analysis are based on conservative estimates and worst-case conditions, with maximum levels of construction activity occurring simultaneously within a short period of time. The land uses identified as sensitive receptors by SCAQMD include residences, schools, playgrounds, child care centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. The nearest sensitive receptors (residential and school land uses) with the highest potential to be impacted by the proposed project include the following (Figure 2.3.4-1, *Nearest Sensitive Receptors to Project Location*):

- Signal Hill Elementary School, located at 2285 Walnut Avenue, Signal Hill, California, 90755, approximately 0.3 mile north of the proposed project site.

- Alvarado Elementary School, located at 1900 East 21st Street, Signal Hill, California, 90755, approximately 0.2 mile northeast of the proposed project site.

- Courtyard Care Center, located at 1880 Dawson Avenue Signal Hill, California, 90755, approximately 0.2 mile east of the proposed project site.

- Creative Arts School, located at 1423 Walnut Avenue, Long Beach, California, 90813, approximately 0.4 mile south of the proposed project site.

- John G. Whittier Elementary School, located at 1761 Walnut Avenue, Long Beach, California, 90813, approximately 0.06 mile southwest of the proposed project site.

- Long Beach City College–Pacific Coast Campus, located at 1305 East Pacific Coast Highway, Long Beach, California, 90806, approximately 0.2 mile west of the proposed project site.

- Central Child Development Center, located at 1133 East Rhea Street, Long Beach, California, 90806, approximately 0.4 mile northwest of the proposed project site.

- Mary Butler K–8 School, located at 1400 East 20th Street, Long Beach, California, 90806, approximately 0.1 mile northwest of the proposed project site.

Additional single-family and multi-family residences are located in the surrounding community with 0.25 mile of the proposed project site.

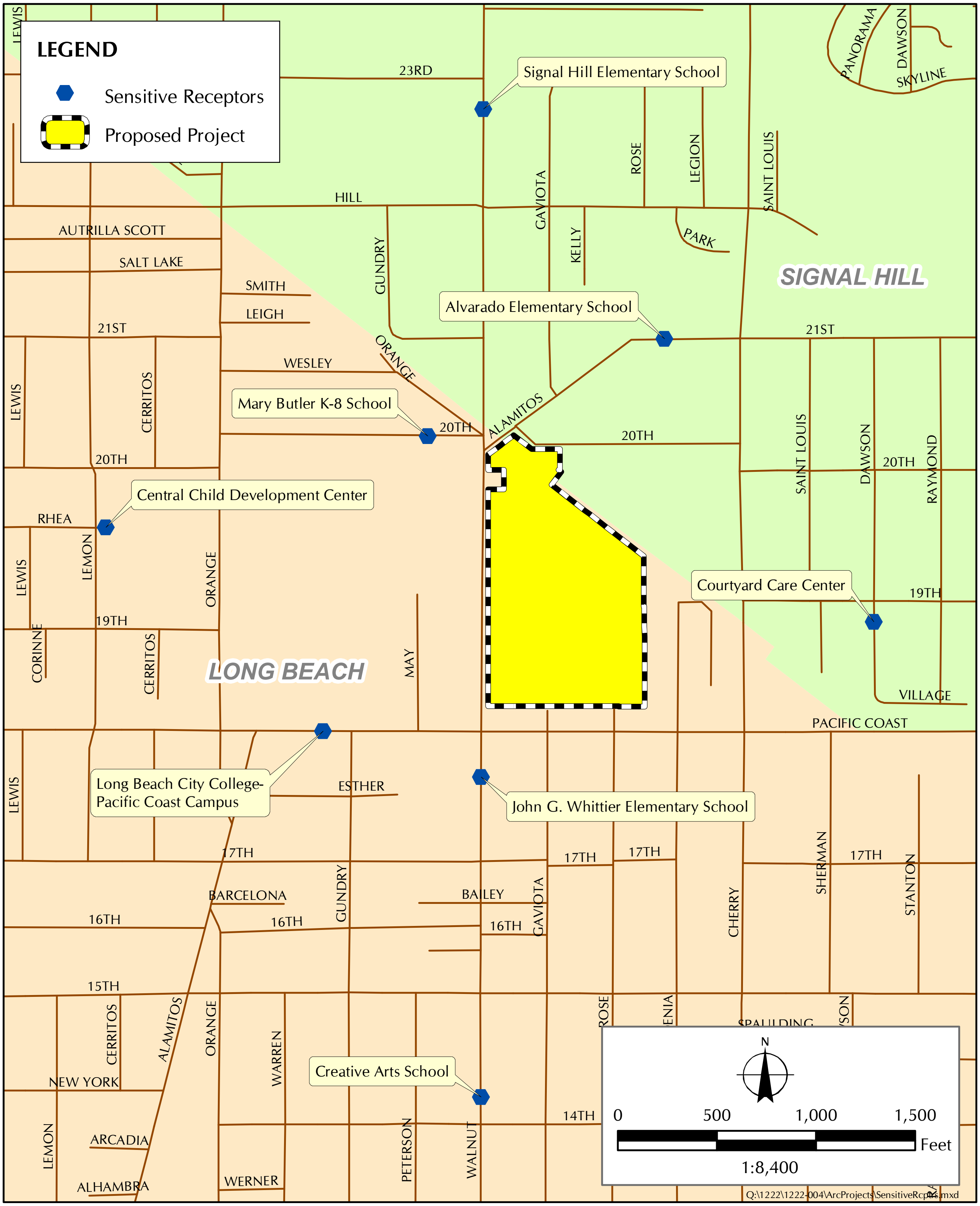

FIGURE 2.3.4-1

Nearest Sensitive Receptors to Project Location

SECTION 3.0
STUDY METHODS

The methods used to analyze construction and operational air quality impacts are consistent with the methods described in the 1993 *CEQA Air Quality Handbook*.[1] The California Air Resources Board (CARB) Urban Emission Model (URBEMIS) 2007 version 9.2.4 was used to estimate the emissions from the construction and operation of the 19-acre proposed Kroc Community Center (proposed project) site. URBEMIS is a computer program that can be used to estimate emissions associated with land development projects in California such as residential neighborhoods, shopping centers, and office buildings; air sources such as gas appliances, wood stoves, fireplaces, and landscape maintenance equipment; and construction projects. The URBEMIS 2007 emission model directly calculates criteria pollutants' emissions, including CO, NO_2, SO_2, VOCs, PM_{10}, $PM_{2.5}$, and CO_2 emissions. The South Coast Air Quality Management District daily construction thresholds of significance were used to compare the proposed project's daily construction emission impacts to determine project significance. URBEMIS 2007 version 9.2.4 was also used to analyze the proposed project's operational emissions, which would be likely to result from additional vehicle trips traveling to and from the proposed project site by employees and visitors. Because the proposed project site does not contain an industrial component that is considered a lead emission source, the concentrations and emissions of lead were not analyzed for the proposed project.

Assumptions listed in the following were made in order to perform the air quality technical analysis using the URBEMIS 2007, version 9.2.4 emission model.

1. The proposed project was assumed to consist of a 19-acre development.

2. The land use categories used for the air quality analysis were a place of worship (12,460 square feet), a day care center (3,100 square feet), and a general office building (11,400 square feet). The recreational community center (143,580 square feet) was represented with a blank land use category.

3. It was assumed that the proposed project will generate up to 3,770 trips per day[2] by using trip generation factors of 22.88 trips per 1,000 square feet for the recreation community center, 9.11 trips per 1,000 square feet for the place of worship, 79.26 trips per 1,000 square feet for the day care center, and 11.01 trips per 1,000 square feet for the general office building.

4. The total project construction was assumed to take 29 months in maximum from 2009 to 2012.

5. Four construction phases were assumed: demolition, earthwork, drainage improvements, and construction of the recreational facilities.

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[1] South Coast Air Quality Management District. 1993. *CEQA Air Quality Handbook*. Diamond Bar, CA.

[2] Linscott, Law & Greenspan. 30 January 2009. *Kroc Community Center Traffic Impact Analysis*. Costa Mesa, CA.

6. It was assumed that demolition would take 1 month, earthwork would take 4 months, drainage improvements would take 6 months, and construction would take approximately 18 months.

7. It was assumed that a maximum of 0.24 acre (19 acres ÷ 80 days) would be disturbed daily during grading.

8. Default parameters such as the horsepower and the operational duration were used for all construction equipment anticipated to be used for the proposed project.

9. Area air emission sources of natural gas fuel combustion, hearth fuel combustion, landscape fuel combustion, consumer products, and architectural coatings were selected to represent area sources in the vicinity of the proposed project.

10. Default values (i.e. vehicular fleet, trip characteristics, temperature data, and variable starts) were used to calculate air emissions generated by vehicular trips to and from the proposed project site.

11. The build-out year for the proposed project was assumed to be 2011, which was inputted to represent the vehicular fleet mix in 2011 upon completion of the proposed project's construction.

The CARB Emissions Factors (EMFAC) 2007 model, version 2.3, was used to evaluate the proposed project's greenhouse gas emission level contributed by mobile sources, such passenger cars, based on the expected vehicle fleet mix, vehicle speeds, commute distances, and temperature conditions for 2011, the estimated finish date of the proposed project. The EMFAC 2007, version 2.3, which is imbedded within the URBEMIS 2007 emissions model, includes emission factors for CO_2, CH_4, and criteria pollutants. Therefore, the transportation-related greenhouse gas emissions impacts generated by implementation of the proposed project were analyzed using the EMFAC 2007 model. In this analysis, fleet mix, vehicle speeds, commute distances, and temperature conditions were based on the default values in the URBEMIS 2007 and EMFAC 2007 emissions models.

SECTION 4.0
SIGNIFICANCE CRITERIA

The proposed Kroc Community Center (proposed project) air quality impacts can be separated into short-term impacts due to construction and long-term permanent impacts from project operation. Both types of impacts may occur on a local or regional scale. The significance air quality impact levels associated with the proposed project were determined by comparing construction and operational emissions of the proposed project to their respective significance thresholds established by South Coast Air Quality Management District (SCAQMD).

4.1 CONSTRUCTION PHASE

The significance criteria for the construction phase of the proposed project include the following:

- Daily SCAQMD construction emission thresholds for carbon monoxide (CO), volatile organic compounds (VOCs), nitrogen oxides (NO_x), sulfur oxides (SO_x), particulate matter that are 2.5 microns or less in diameter ($PM_{2.5}$), and particulate matter that are 10 microns or less in diameter (PM_{10} as presented in Table 4.1-1, *SCAQMD Daily Construction Emission Thresholds of Significance*;

- Emissions of toxic air contaminants (TAC) including carcinogens and non-carcinogens – Maximum Incremental Cancer Risk ≥ 10 in 1 million; Hazard Index ≥ 1.0 (project increment);[1] and

- Odor nuisance pursuant to SCAQMD's Rule 402.

TABLE 4.1-1
SCAQMD DAILY CONSTRUCTION EMISSION THRESHOLDS OF SIGNIFICANCE

Criteria Air Pollutant	Project Construction (lbs/day)
Carbon monoxide (CO)	550
Volatile organic compounds (VOCs)	75
Nitrogen oxides (NO_x)	100
Sulfur oxides (SO_x)	150
Particulate matter ($PM_{2.5}$)	55
Particulate matter (PM_{10})	150

SOURCE: South Coast Air Quality Management District. 1993. *CEQA Air Quality Handbook*. Diamond Bar, CA.

4.2 OPERATIONAL PHASE

The significance criteria for the operational phase of the proposed project include the following:

- Daily SCAQMD operational emissions thresholds for CO, VOCs, NO_x, SO_x, $PM_{2.5}$, and PM_{10} as presented in Table 4.2-1, *SCAQMD Daily Operational Emission Thresholds of Significance*;

[1] South Coast Air Quality Management District. July 2008. *SCAQMD Air Quality Significance Thresholds*. Available at: http://www.aqmd.gov/CEQA/handbook/signthres.pdf

- The California Ambient Air Quality Standards (CAAQS) for the 1- and 8-hour periods of CO concentrations of 20 parts per million (ppm) and 9 ppm, respectively. If CO concentrations currently exceed the CAAQS, then an incremental increase of 1.0 ppm over no project conditions for the 1-hour period would be considered as a significant impact. An incremental increase of 0.45 ppm over the no project conditions for the 8-hour period would be considered significant;

- Emission of TAC;[2] and

- Odor nuisance pursuant to SCAQMD's Rule 402.

TABLE 4.2-1
SCAQMD DAILY OPERATIONAL EMISSION THRESHOLDS OF SIGNIFICANCE

Criteria Air Pollutant	Project Operation (lbs/day)
Carbon monoxide (CO)	550
Volatile organic compounds (VOCs)	55
Nitrogen oxides (NO_x)	55
Sulfur oxides (SO_x)	150
Particulate matter ($PM_{2.5}$)	55
Particulate matter (PM_{10})	150

SOURCE: South Coast Air Quality Management District. 1993. *CEQA Air Quality Handbook*. Diamond Bar, CA.

[2] South Coast Air Quality Management District. July 2008. *SCAQMD Air Quality Significance Thresholds*. Available at: http://www.aqmd.gov/CEQA/handbook/signthres.pdf

SECTION 5.0
IMPACT ANALYSIS

This section analyzes the potential for significant impacts to air quality that would occur from implementation of the proposed Kroc Community Center (proposed project). Air quality impacts of a project generally fall into four major categories:

1) *Construction Impacts* – temporary impacts, including airborne dust from grading, demolition, and dirt hauling and gaseous emissions from heavy equipment, delivery and dirt hauling trucks, employee vehicles, and paints and coatings.

   Construction emissions vary substantially from day to day, depending on the level of construction phase and weather conditions.

2) *Operational Regional Impacts* -- primarily gaseous emissions from natural gas and electricity usage and vehicles traveling to and from a project site.

3) *Operational Local Impacts* -- increases in pollutant concentrations, primarily carbon monoxide, resulting from traffic increases in the immediate vicinity of a project, as well as any toxic and odor emissions generated on site.

4) *Cumulative Impacts* -- air quality changes resulting from the incremental impact of the project when added to other projects in the vicinity.

5.1 CONSTRUCTION PHASE

Construction of the proposed project has the potential to create air quality impacts through the use of heavy duty construction equipment and through vehicle trips generated from construction workers traveling to and from the proposed project site. Fugitive dust emissions would primarily result from demolition and site earthwork activities. Nitrogen oxide (NO_x) emissions would primarily result from the use of construction equipment. Paving operations and the application of architectural coatings and other building materials would release volatile organic compound (VOC) emissions. The assessment of construction air quality impacts considers each of these potential sources during each constructional phase. However, construction emissions can vary substantially from day to day depending on the level of activity, the specific type of operation, and dust depending on the prevailing weather conditions.

Construction Scenario

Construction activities would include demolition and site preparation, paving and landscaping, delivery and hauling of construction materials and equipment, and fuel combustion by on-site construction equipment and construction worker commute trips. The proposed project, as currently conceived, would entail demolition of existing elements on the site, mass site grading and compaction required to create the building pads, drainage improvements related to storm water management, and construction of the 170,536-gross-square-foot new facilities and the remaining 715,259-square-foot space for the parking lots, gardens, aquatic center, and sports fields.

The development of the proposed project would require approximately 29 months to be completed. Construction would be scheduled in compliance with the County of Los Angeles Noise Control Ordinance, which limits construction to between the hours of 7:00 a.m. and 8:00 p.m. on weekdays. Work on Saturdays would commerce at 9:00 a.m. and cease no later than 6:00 p.m. Signage would be provided at the proposed project area to warn pedestrians of the on-going construction work.

A list of the type and quantity of equipment and vehicles and approximate duration of on-site activities was developed in coordination with Heery International and Moffat & Nichol Engineers. This information was used as a basis for the construction equipment inputs into the URBEMIS 2007 v.9.2.4 model. Table 5.1-1, *Anticipated Demolition Equipment*, shows the types, quantities, and duration of construction equipment used for the demolition phase of the URBEMIS simulation. This phase represents Phase I of the proposed project's construction, which would include removal of existing utilities on site, removal of existing low-flow concrete drainage swales, and removal of existing storm drain outlets.

TABLE 5.1-1
ANITICIPATED DEMOLITION EQUIPMENT

Type of Equipment/Vehicle	Quantities (Approximate)	Horsepower	Approximate Duration of On-site Construction Activity (hours/day)
Tractors/Loaders/Backhoes	2	108	6
Cranes	1	399	8
Excavators	1	300	8
Off Highway Trucks	1	479	8
Other Material Handling Equipment	1	191	8
Rubber Tired Dozers	1	400	1
Rubber Tired Loaders	1	250	8
Water Trucks	1	189	8

Table 5.1-2, *Anticipated Mass Grading Equipment*, shows the types, quantities, and duration of construction equipment used during the mass grading phase of the URBEMIS simulation. This phase is intended to be equivalent to Phase II of the proposed project's construction, which includes deepening the detention basin and over-excavation and re-compaction of earth to prepare the base of the proposed project.

TABLE 5.1-2
ANITICIPATED MASS GRADING EQUIPMENT

Type of Equipment/Vehicle	Quantities (Approximate)	Horsepower	Approximate Duration of On-site Construction Activity (hours/day)
Dumpers/Tenders	20	16	8
Scrapers	7	500	8
Tractors/Loaders/Backhoes	3	108	7
Water Trucks	3	189	8
Rubber Tired Dozers	2	400	6
Graders	1	200	6
Other Equipment	1	500	8
Rubber Tired Loaders	1	300	8

Table 5.1-3, *Anticipated Construction Equipment - 1*, shows the types, quantities, and duration of construction equipment used during the first construction phase of the URBEMIS simulation. This phase is intended to represent Phase III of the construction activities, which relate to drainage improvements.

TABLE 5.1-3
ANITICIPATED CONSTRUCTION EQUIPMENT - 1

Type of Equipment/Vehicle	Quantities (Approximate)	Horsepower	Approximate Duration of On-site Construction Activity (hours/day)
Dumpers/Tenders	3	16	8
Other Equipment	2	5	8
Cement and Mortar Mixers	1	10	8
Cranes	1	399	6
Excavators	1	300	8
Other General Industrial Equipment	1	238	8
Other Material Handling Equipment	1	191	8
Rubber Tired Loaders	1	250	8
Tractors/Loaders/Backhoes	1	100	8
Water Trucks	1	189	8

Table 5.1-4, *Anticipated Construction Equipment - 2*, shows the types, quantities, and duration of construction equipment used during the second construction phase of the URBEMIS simulation. This phase represents the construction activities involved in construction of the 170,536-gross-square-foot new facilities and the remaining 715,259-square-foot space for the parking lots, gardens, aquatic center, and sports fields.

TABLE 5.1-4
ANITICIPATED CONSTRUCTION EQUIPMENT - 2

Type of Equipment/Vehicle	Quantities (Approximate)	Horsepower	Approximate Duration of On-site Construction Activity (hours/day)
Other Equipment	5	190	8
Cranes	3	399	6
Forklifts	3	145	6
Graders	3	200	8
Off Highway Trucks	3	479	8
Aerial Lifts	2	60	8
Water Trucks	2	189	8
Cement and Mortar Mixers	1	10	8
Dumpers/Tenders	1	16	8
Other Material Handling Equipment	1	250	8
Pavers	1	200	8
Pumps	1	53	8
Rollers	1	95	8
Rubber Tired Loaders	1	164	8
Tractors/Loaders/Backhoes	1	100	8

Construction Impacts

During construction of the proposed project, there is the potential to create air quality impacts through the use of heavy-duty construction equipment and through vehicle trips generated from construction workers traveling to and from the proposed project site. Potential emission estimates from construction activities are based on emission factors and construction scenario information for development at the proposed project site. The total amount of construction, including duration and level of construction activity occurring at the proposed project site, would influence the estimated construction emissions and resulting potential impacts. The emission forecasts are therefore based on conservative assumptions about the construction scenario, with construction activities occurring eight hours a day, five days a week and being completed within a relatively short timeframe. In addition, estimates included in this analysis include the highest number of potential worker commute trips. Due to the conservative nature of these assumptions, actual emissions from the individual construction projects would most likely be less than the estimates forecasted.

Construction emissions are expected to result from the following activities:

- Demolition
- Site grading and earthwork
- Building construction
- Paving
- Coating
- Delivery and hauling of construction materials and equipment
- Fuel combustion by on-site construction equipment
- Construction worker commute trips

The delivery and hauling of construction materials and equipment, the use of heavy duty construction equipment, and the construction workers' commute trips from and to the proposed project site would be initiated in support of site construction activities. The construction air quality technical impact analysis takes into account of each of these potential emission sources.

The proposed project's maximum daily construction emissions were generated using the methodologies described in Section 3.0, *Study Methods*, of this Air Quality Technical Impact Report. The daily construction emissions associated with the proposed project's construction activities would not exceed the SCAQMD daily construction emission thresholds of significance for VOCs, CO, SO_x, PM_{10}, or $PM_{2.5}$ (Table 5.1-5, *Estimated Daily Construction Emissions*). However, the daily construction emissions associated with the proposed project's construction activities would exceed the SCAQMD daily construction emission threshold of significance for NO_x. During the construction phase, peak day emissions of NO_x would be significant in the grading phase without mitigation. However, each calculated emission represents worst case conditions that would be unlikely to occur due to the assumption that all equipment and trucks are operating continuously for six to eight hours per day during each phase of construction. Impacts related to construction of the proposed project would require implementation of mitigation measures. URBEMIS 2007 does not contain the detail necessary to calculate resulting NO_x emissions after implementation of mitigation measures.

TABLE 5.1-5
ESTIMATED DAILY CONSTRUCTION EMISSIONS

Construction Phase	Construction Emissions (Pounds/Day)					
	VOCs	**NO_x**	**CO**	**SO_x**	**$PM_{2.5}$**	**PM_{10}**
Demolition	6.49	60.01	23.06	0	2.31	2.52
Mass Site Grading	31.95	293.15	140.94	0.01	12.47	17.30
Building Construction I	5.53	50.41	29.06	0.02	1.91	2.12
Building Construction II	5.53	50.41	29.06	0.02	1.91	2.12
Maximum Regional Total	**31.95**	**293.15**	**140.94**	**0.02**	**12.47**	**17.30**
SCAQMD Daily Significance Threshold (Pounds/Day)	**75**	**100**	**550**	**150**	**55**	**150**
Significant?[1]	**No**	**Yes**	**No**	**No**	**No**	**No**

NOTE: Pollutant emissions are considered significant if the maximum peak day construction emissions exceed the SCAQMD daily significance threshold.
SOURCE: Appendix C, *Urbemis 2007 Version 9.2.4 Output.*

The greatest potential for toxic air contaminant (TAC) emissions during construction would be diesel particulate emissions associated with heavy duty equipment operations. TAC emissions associated with construction of the proposed project have been analyzed by using the standard health risks assessment methodology to determine individual cancer risk of a person continuously exposed to TACs over a 70-year lifetime. Given the short-term construction schedule of approximately 29 months, the proposed project would not be expected to result in a long-term (i.e. 70 years) source of TAC emissions. No residual TAC emissions and corresponding individual cancer risk are anticipated after construction. Therefore, project construction-related TAC emissions would be expected to be below the level of significance.

Potential sources that may contribute to odor impacts during construction activities include equipment exhaust, application of architectural coatings, and asphalt operation. However, the proposed project has a short-term construction schedule. In addition, since odors are normally localized and confined to the proposed project site, an odor nuisance associated with the proposed project is less likely to occur. The construction of the proposed project would use typical construction equipment, and odors at the proposed project site would be typical for most construction sites. In addition, the project construction is required to comply with SCAQMD Rule 402; hereby, odor impacts from the proposed project construction would be below the level of significance.

Sensitive Receptors

The proposed project would be located in the City of Long Beach. Land uses identified to be sensitive receptors by SCAQMD in the California Environmental Quality Act (CEQA) Handbook include residences, schools, playgrounds, child care centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. People with compromised immune systems may be exposed to emissions released from the construction and operation of the proposed project. The greatest potential for exposure of sensitive receptors to air contaminants would occur during the temporary construction phase when soils would be disturbed, removed, and uncovered and when equipment would be used for site grading, materials delivery, and facility construction.

Exposure to potential emissions would vary substantially from day to day, depending on the amount of work being conducted, the weather conditions, the location of receptors, and the length of time that receptors would be exposed to air emissions. The construction phase emissions estimated in this analysis are based on conservative estimates and worst-case conditions, with maximum levels of construction activity occurring simultaneously within a short period of time. The nearest sensitive receptors, low density residential and school land uses, with the highest potential to be impacted by the proposed project are the following (Figure 2.3.4-1):

- Signal Hill Elementary School, located at 2285 Walnut Avenue, Signal Hill, California, 90755, approximately 0.3 mile north of the proposed project site.

- Alvarado Elementary School, located at 1900 East 21st Street, Signal Hill, California, 90755, approximately 0.2 mile northeast of the proposed project site.

- Courtyard Care Center, located at 1880 Dawson Avenue Signal Hill, California, 90755, approximately 0.2 mile east of the proposed project site.

- Creative Arts School, located at 1423 Walnut Avenue, Long Beach, California, 90813, approximately 0.4 mile south of the proposed project site.

- John G. Whittier Elementary School, located at 1761 Walnut Avenue, Long Beach, California, 90813, approximately 0.06 mile southwest of the proposed project site.

- Long Beach City College–Pacific Coast Campus, located at 1305 East Pacific Coast Highway, Long Beach, California, 90806, approximately 0.2 mile west of the proposed project site.

- Central Child Development Center, located at 1133 East Rhea Street, Long Beach, California, 90806, approximately 0.4 mile northwest of the proposed project site.

- Mary Butler K–8 School, located at 1400 East 20th Street, Long Beach, California, 90806, approximately 0.1 mile northwest of the proposed project site.

Additional single-family and multi-family residences are located in the surrounding community with 0.25 mile of the proposed project site.

Due to the short-term nature of the project construction and temporary nature of potential exposures to proposed project construction-related air emissions, sensitive receptors would not be expected to be significantly affected by the proposed project. In addition, although off-site residents, including adults and children, would have a longer potential duration of exposure to the proposed project's constructional air emissions, the distance from the proposed project site would be expected to minimize potential impacts to below the level of significance.

5.2 OPERATIONAL PHASE

Given that the proposed project would operate as a public community center, it would require stationary sources for daily operation and maintenance. As the proposed project includes the development of increased parking availability and will cause additional traveling directly to and from the proposed project site, there would be a significant amount of additional daily vehicle trips generated by the proposed project, and there would be long-term operation-related air emissions at the site as a result of mobile sources. It is assumed that the proposed project would generate up to a maximum of 3,770 vehicular trips per day.[1]

URBEMIS 2007 emission model version 9.2.4 was used to calculate emissions from mobile sources. URBEMIS 2007 emission model version 9.2.4 is based on the EMFAC2007 emission inventory model version 2.3, which projects emission estimates based upon the expected vehicle fleet mix for the estimated start date of the proposed project, the vehicle speed and distance assumption, trip characteristics, and temperature conditions. Vehicle fleet mix, speeds, distance, and temperature conditions were based on the default values in the URBEMIS 2007 emission model version 9.2.4 to calculate mobile source emissions. In contrast to the URBEMIS 2002 emission model, the URRBEMIS 2007 emission model directly calculates both particulate matter that are 2.5 microns or less in diameter ($PM_{2.5}$) and carbon monoxide (CO_2) emissions.

Long-term operation emissions of the proposed project are listed in Table 5.2-1, *Estimated Daily Operational Emissions*. As shown in Table 5.2-1, daily operational emissions of CO, sulfur oxides (SO_x), NO_x, VOCs, particulate matter that are 10 microns or less is diameter (PM_{10}), and $PM_{2.5}$ would not exceed SCAQMD thresholds of significance. Thus, the proposed project would not be expected to result in a significant level of impacts to air quality during operations and would not require mitigation measures.

[1] Linscott, Law & Greenspan. 30 January 2009. *Kroc Community Center Traffic Impact Analysis.* Costa Mesa, CA.

TABLE 5.2-1
ESTIMATED DAILY OPERATIONAL EMISSIONS

Air Pollutants	Operational Emissions URBEMIS[1] (Pounds/Day)	Operational Emissions SCAQMD Daily Significance Threshold (Pounds/Day)	Significant?[2]
Carbon monoxide (CO)	207.66	550	No
Sulfur oxides (SO_x)	0.22	150	No
Nitrogen oxides (NO_x)	23.36	55	No
Volatile organic gases (VOCs)	19.92	55	No
Particulate matter (PM_{10})	35.58	150	No
Fine particulate matter ($PM_{2.5}$)	6.94	55	No

NOTES:
1. Daily operational emissions use annual emission data since the proposed project would be operated on a year-round basis.
2. Maximum peak day construction emissions = total of pollutants for each source. Pollutant emissions are considered significant if the maximum peak day construction emissions exceed the SCAQMD daily significance threshold.

SOURCE: Appendix C, *Urbemis 2007 Version 9.2.4 Output*.

CO is considered a localized problem under Section 9.4 of SCAQMD's *CEQA Air Quality Handbook*; thus, additional analysis when a proposed project is likely to expose sensitive receptors to CO hotspots is required. Localized levels of CO concentrations from vehicles termed as CO hotspots were analyzed for the proposed project as additional number of vehicle trips that would be added to the intersections under the existing congested condition without the proposed project. As indicated above, the proposed project would result in approximately 3,770 vehicle trips a day. This number of daily peak-hour vehicle trips is expected to be adequately absorbed by the regional roadway network; thereby, no significant increase in CO concentrations at sensitive receptor locations would be expected, and localized operational CO emissions would result in impacts below the level of significance.

The SCAQMD recommends that health risk assessment be conducted for substantial sources of diesel particulate emissions such as emissions from truck stops and warehouse distribution facilities. The operation of the proposed project as a community center would not be expected to require heavy duty equipment operations or generate daily truck trips. To take a conservative approach when considering the proposed project's contribution to the TAC levels, trucks used for maintenance and delivery purposes during the project's operation would be the only potential source contributing to the TAC level at the proposed project site. However, the number and frequency of heavy duty trucks accessing the proposed project site on a daily basis would be minimal. Typical sources of acute and chronically hazardous TACs include commercial developments, manufacturing industries, and automobile repair facilities. Since the proposed project does not fall under any of those categories, additional amounts of TACs would not be expected to be emitted from the proposed project site. Therefore, project operation-related TAC emissions would be below the level of significance, and, consequently, have an air toxic impact on human health that would be below the level of significance.

According to the SCAQMD *CEQA Air Quality Handbook*, land uses and industrial operations that are associated with odor complaints include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. Since the proposed project development includes only a community center and does not include any land uses or industrial operations that are typically associated with odor nuisance, the proposed project would cause less than significant odor impacts. Furthermore, although trash bins at the site would have the potential to create odors, they would be maintained and controlled in a manner that controls adverse odors and complies with SCAQMD Rule 402. Therefore, operational odor impacts from the proposed project would be below the level of significance.

Sensitive Receptors

Daily operational air emissions of criteria air pollutants, TAC levels, and odor impacts would be expected to be below the level of significance. Therefore, the long-term exposure of sensitive receptors to the proposed project's operational air emissions would not be expected to occur at a level that is beyond the level of SCAQMD's thresholds of significance.

5.3 GLOBAL CLIMATE CHANGE

Methodology to assess the proposed project's impacts on global climate change has not been developed by SCAQMD, state, or federal agencies. No significance thresholds have been established to determine the project's construction and operational impacts on global climate change. Given the absence of methodology and thresholds to evaluate global climate change impacts of the proposed project and the challenges associated with determining criteria for the proposed project-specific significance in regards to GHG emissions, the project's global climate change impacts were analyzed qualitatively according to its operational scenario, size, and location. In order to quantify the amount of GHG emissions contributed by construction and operation of the proposed project, the URBEMIS 2007 emissions model, the EMFAC 2007 model, and the CCAR's General Reporting Protocol GHG emissions quantification methodologies were used. Due to the absence of significance criteria and thresholds for GHG emissions, the level of significance of the proposed project's potential impacts to global climate change were determined by comparison to the 2004 emissions for California. [2]

Qualitative Analysis of Proposed Project's Impacts on Global Climate Change

The proposed project's incremental impact on greenhouse gas emission would be significant if the size, the nature, or the duration of the construction phase would generate a substantial amount of greenhouse gas emissions. The construction phase of the proposed project would take approximately 29 months to complete and would cover an area of 19 acres in size. During construction, normal construction equipment would be operated. The short-term nature of the construction duration and the typical nature of the construction activities would not substantially increase global greenhouse gas emissions.

During the operational phase of the proposed project, emissions of greenhouse gases would occur from daily operation and maintenance and from vehicular trips traveling to and from the proposed

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[2] Energy Information Administration. April 2007. *Table 3 State Emissions by Year*. Available at: http://www.eia.doe.gov/oiaf/1605/ggrpt/excel/tbl_statetotal.xls

project site. Daily operational emissions would be caused by electricity use for space and water heating, lighting, and electrical appliances. However, the proposed project's application as a community center would cause far less greenhouse gas emissions than a larger industrial building such as a power plant or factory. Therefore, the proposed project's operational phase would not result in substantial increases in greenhouse gas emissions, and the proposed project's cumulative impact on global climate change would be below the level of significance.

Quantitative Analysis of Proposed Project's Impacts on Global Climate Change

The principal anthropogenic greenhouse gases that enter the atmosphere include CO_2, methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (CFCs), perfluorocarbons (HCFCs), and sulfur hexafluoride (SF_6).[3] Among these greenhouse gases, CO_2 is considered to be the most dominant gas contributing to global climate change.[4] To quantitatively analyze the proposed project's impacts on global climate change, URBEMIS 2007 emission model version 9.2.4 was used to calculate CO_2 emissions resulting from construction and operation of the proposed project. The same assumptions listed in Section 3.0, *Study Methods*, of this air quality assessment were used to calculate the CO_2 emissions. Given the absence of federal, state, or regional construction-related and operation-related greenhouse gas emission thresholds of significance, California's total greenhouse gas emissions of 2004 were used to determine the significance level of the proposed project's impacts on global climate change.[5] In 2004, California was reported to have contributed approximately 399 million metric tons of CO_2 emissions statewide.[6]

When calculating the potential greenhouse gas emissions caused by construction of the proposed project, only CO_2 emissions were considered. Although CH_4 and N_2O are considered principle greenhouse gases, CH_4 is primarily emitted by landfills, natural gas systems, and enteric fermentation processes,[7] and N_2O emissions originate from agricultural soil management, on-road mobile sources, and manure management.[8] Since construction of the proposed project does not involve landfills, natural gas systems, enteric fermentation, agricultural soil management, or manure management and requires operation of construction equipment for completing daily construction activities, CO_2 emissions were determined to be primary greenhouse gas emissions to be emitted by the proposed project's construction.

When calculating the amount of potential greenhouse gas emissions caused by operation of the proposed project, CO_2, CH_4, and N_2O emissions were used to calculate CO_2 equivalent (CO_{2e}) emissions associated with electricity use, as recommended by the California Climate Action

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[3] U.S. Environmental Protection Agency. 11 October 2007. *Greenhouse Gas Emissions, Greenhouse Gas Overview*. Available at: http://www.epa.gov/climatechange/emissions/index.html

[4] Energy information Administration. October 2003. *Units for Measuring Greenhouse Gases*. Available at: http://www.eia.doe.gov/oiaf/1605/archive/gg03rpt/summary/special_topics.html

[5] At the time the Air Quality Technical Impact Report was completed, the 2004 greenhouse gas emissions were the most current data available from the Energy Information Administration.

[6] Energy Information Administration. September 2008. *Table 3 State Emissions by Year*. Available at: http://www.eia.doe.gov/oiaf/1605/ggrpt/excel/tbl_statetotal.xls

[7] U.S. Environmental Protection Agency. Accessed 23 September 2008. *Methane Sources and Emissions*. Available at: http://www.epa.gov/methane/sources.html

[8] U.S. Environmental Protection Agency. Accessed 23 September 2008. *Nitrous Oxide Sources and Emissions*. Available at: http://www.epa.gov/nitrousoxide/sources.html

Registry.[9] When calculating CO_2 emission levels associated with mobile sources, the California Air Resources Board Emissions Factors 2007, version 2.3, recommended by the Office of the Attorney General, were used.

According to Appendix C, a maximum of 1,728.23 metric tons per year of CO_2 would be emitted as result of the proposed project's construction. Given that development of the proposed project would only contribute approximately 0.0004 percent[10] of California's total 2004 CO_2 emissions, the proposed project's constructional phase would be expected to result in a less than significant level of cumulative impacts on global climate change. Annual electricity consumption associated with implementation of the proposed project was calculated by using the electricity consumption rates based on land use classifications in accordance with the SCAQMD *CEQA Air Quality Handbook*.[11] The electricity consumption rate for office use is approximately 12.95 kilowatt hours (KWh) per square foot per year. As the proposed project would be operated as a 170,536-square-foot facility, the annual electricity use required by operation of the proposed project was calculated by multiplying its floor area in square feet with the annual electricity consumption rate for the office land use recommended by SCAQMD. As a result, operation of the proposed project would be expected to use approximately 2,208.44 megawatt hours per year,[12] resulting in approximately 0.0067 metric tons of CH_4 emissions, 0.0037 metric tons of N_2O emissions, and 880.23 metric tons of CO_2 emissions per year. When the emissions of each gas are multiplied by their respective global warming potentials, the total amount of CO_{2e} generated by electricity use of the project is calculated to be 881.52 metric tons per year. In addition, mobile sources would be expected to contribute 3,777.64 metric tons of CO_2 emissions per year, meaning that the total operational emissions of CO_{2e} would be 4,659.16 metric tons per year, which is approximately 0.001 percent of California's total 2004 CO_2 emissions. Thus, the proposed project's operational phase would not be expected to result in substantial increases in California's total greenhouse gas emissions, and the proposed project operation-related cumulative impact on global climate change would be below the level of significance.

5.4 CUMULATIVE IMPACT ANALYSIS

SCAQMD's methodological framework was used to assess the proposed project's cumulative impacts. In order to assess cumulative impacts based on the Air Quality Management District's forecasts of attainment of ambient air quality standards set forth in the Federal and State Clean Air Acts, this methodological framework takes into account forecasted regional growth projections from the Southern California Association of Governments (SCAG). The proposed project would be expected to generate 3,770 daily vehicle trips commuting to the proposed project site each day,[13] or a total of approximately 20,580 vehicle miles traveled (VMT) to the proposed project site.[14] These additional trip generations or VMTs that would result from implementation of the proposed

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[9] California Climate Action Registry. April 2008. *California Climate Action Registry General Reporting Protocol, version 3.0, Chapter 6, Indirect Emissions from Electricity Use*. Available at: http://www.climateregistry.org/resources/docs/protocols/grp/GRP_V3_April2008_FINAL.pdf

[10] 0.0004 percent = [1,728.23 metric tons per year / (399,000,000 metric tons)] x 100 percent

[11] South Coast Air Quality Management District. 1993. *CEQA Air Quality Handbook*. Page A9–114. Diamond Bar, CA.

[12] U.S. Environmental Protection Agency. Accessed 28 October 2008. Web site. "Power Profiler." Available at: http://www.epa.gov/cleanenergy/energy-and-you/how-clean.html

[13] Linscott, Law & Greenspan. 30 January 2009. *Kroc Community Center Traffic Impact Analysis*. Costa Mesa, CA.

[14] Sapphos Environmental, Inc. September 2008. *Urbemis 2007 Version 9.2.4 Combined Annual Emissions Reports (Tons/Year)*. Pasadena, CA.

project would be expected to be absorbed by the existing roadwork network in the Long Beach community and its neighboring cities.[15] In addition, operation of the proposed project would not be expected to generate any population growth. Therefore, the proposed project would be consistent with the SCAG's regional growth forecasts for attaining the ambient air quality standards and would cause cumulative air quality impacts that would be below the level of significance.

[15] Linscott, Law & Greenspan. 30 January 2009. *Kroc Community Center Traffic Impact Analysis*. Costa Mesa, CA.

SECTION 6.0
MITIGATION MEASURES AND IMPACTS AFTER MITIGATIONS

6.1 MITIGATION MEASURES

Construction Phase Mitigation Measures

Measure Air-1

Water or a stabilizing agent shall be applied to exposed surfaces in sufficient quantity two times a day to prevent generation of dust plumes. Soil moistening shall be required to treat exposed soil during construction of each element of the proposed project to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in criteria pollutants. Prior to advertising for construction bids for each element of the proposed project, the plans and specifications shall be reviewed by the lead agency to ensure that the plans and specifications for each element of the proposed project include the requirement for the construction contractor to ensure that soil shall be moistened not more than 15 minutes prior to the daily commencement of soil-moving activities and three times a day, or four times a day under windy conditions, in order to maintain a soil moisture content of 12 percent. The construction contractor shall demonstrate compliance with this measure through the submission of weekly monitoring reports to the lead agency. At a minimum, active operations shall utilize one or more of the applicable best available control measures to minimize fugitive dust emissions from each fugitive dust source type that is part of the active operation.

Measure Air-2

Moistening or covering of excavated soil piles shall be required to treat grading areas during construction of the proposed project to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in critical pollutants. Prior to advertising for construction bids for the proposed project, the lead agency shall ensure that the plans and specifications for each element of the proposed project include the requirement for the construction contractor to ensure that excavated soil piles are watered hourly for the duration of construction or covered with temporary coverings.

Measure Air-3

Discontinuing construction activities that occur on unpaved surfaces during windy conditions shall be required to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in critical pollutants. Prior to advertising for construction bids for each element of the proposed project, the lead agency shall ensure that the plans and specifications for each element of the proposed project include the requirement for the construction contractor to cease construction activities that occur on unpaved surfaces during periods when winds exceed 25 miles per hour.

Measure Air-4

A wheel washing system shall be installed and used to remove bulk material from tires and vehicle undercarriages before vehicles exit the proposed project site. Washing of wheels leaving the construction site during construction of each element of the proposed project shall be required to avoid fugitive dust emissions, ensure compliance with current air quality standards, and avoid contributions to cumulative increases in criteria pollutants. The lead agency shall ensure that the plans and specifications for each element of the proposed project include the requirement for the construction contractor to clean adjacent streets of tracked dirt at the end of each workday or install on-site wheel-washing facilities.

Measure Air-5

Track-out shall not extend 25 feet or more from an active operation, and track-out shall be removed at the conclusion of each workday. Prior to advertising for construction bids for each element of the proposed project, the lead agency shall ensure that the plans and specifications for each element of the proposed project include the requirement for the construction contractor to ensure that the track-out shall not extend 25 feet or more from an active operation and that it would be removed at the conclusion of each workday.

Measure Air-6

All haul trucks hauling soil, sand, and other loose materials shall be covered (e.g., with tarps or other enclosures that would reduce fugitive dust emissions). All transport of soils to and from the proposed project site for each element of the proposed project shall be conducted in a manner that avoids fugitive dust emissions, ensures compliance with current air quality standards, and avoids contributions to cumulative increases in criteria pollutants. Prior to advertising for construction bids for each element of the proposed project, the lead agency shall ensure that the plans and specifications for each element of the proposed project include the requirement for the construction contractor to cover all loads of dirt leaving the site or to leave sufficient freeboard capacity in the truck to prevent fugitive dust emissions en route to the disposal site.

Measure Air-7

Traffic speeds on unpaved roads shall be limited to 15 miles per hour. Prior to advertising for construction bids for each element of the proposed project, the lead agency shall ensure that the plans and specifications for each element of the proposed project include the requirement for the construction contractor to ensure a traffic speed limited to 15 miles per hour.

Measure Air-8

Heavy equipment operations shall be suspended during first- and second-stage smog alerts. Prior to advertising for construction bids for each element of the proposed project, the lead agency shall ensure that the plans and specifications for each element of the proposed project include the requirement for the construction contractor to ensure heavy equipment operations be suspended during first and second stage smog alerts.

Measure Air-9

In order to mitigate the air quality impact caused by nitrogen oxide (NO_x) emissions from construction equipment, the City of Long Beach shall require of the construction contractor that all construction equipment not expected to be used for a period in excess of 5 minutes be turned off as a means of reducing NO_x emissions to the maximum extent practicable. Prior to advertising for construction bids, the lead agency shall ensure that the plans and specifications require the construction contractor to shut off engines when not in use. Specifications shall require the construction contractor to certify monthly to the county or designee that construction equipment is being maintained in peak operating condition.

Measure Air-10

In order to mitigate the air quality impact caused by NO_x emissions from construction equipment, the lead agency shall require of the construction contractor that all construction equipment use particulate filters on all off-road diesel equipment. The contractor should also install diesel-cooled exhaust gas re-circulation (EGR) devices on all off-road diesel equipment where feasible. Prior to advertising for construction bids, the lead agency shall ensure that the plans and specifications require the construction contractor to use particulate filters on all off-road diesel equipment and install diesel-cooled EGR devices on all off-road diesel equipment where feasible.

Operational Phase Mitigation Measures

As indicated in Section 5.0, *Impact Analysis*, of this Air Quality Technical Impact Report, the proposed project would result in a less than significant impact to air quality and require no mitigation measures. Therefore, operational phase mitigation measures are not included in this section.

6.2 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Implementation of air quality mitigation measures Air-1 through Air-7 would ensure that maximum daily PM_{10} emissions would be reduced by approximately 22 percent and $PM_{2.5}$ emissions would be reduced by approximately 6 percent, a much less significant fugitive dust impact. Therefore, with the incorporation of these mitigation measures, fugitive dust emissions associated with the proposed project would be maintained below the level of significance for the threshold level. NO_X emissions would be expected to be significant during construction, but reduced to below the level of significance through the incorporation of mitigation measures Air-8 through Air-10.

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U.S. Supreme Court. 2 April 2007. *Massachusetts, et al., v. Environmental Protection Agency, et al*. 549 U.S. 1438; 127 S. Ct. 1438. Washington DC. Inversion is an atmospheric condition in which a layer of warm air traps cooler air near the surface of the earth and prevent the normal rising of surface air.

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APPENDIX A
WIND AND CLIMATE DATA

LONG BEACH WSCMO, CALIFORNIA (045085)

Period of Record Monthly Climate Summary

Period of Record : 4/ 1/1958 to 12/31/2007

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	66.8	67.3	68.3	71.7	73.6	77.1	82.5	83.9	82.2	78.0	72.1	67.2	74.2
Average Min. Temperature (F)	45.5	47.3	49.7	52.3	56.8	60.3	63.8	64.9	62.8	57.9	50.5	45.3	54.8
Average Total Precipitation (in.)	2.65	2.93	1.92	0.72	0.20	0.06	0.02	0.07	0.20	0.39	1.23	1.61	12.01
Average Total SnowFall (in.)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average Snow Depth (in.)	0	0	0	0	0	0	0	0	0	0	0	0	0

Percent of possible observations for period of record.
Max. Temp.: 100% Min. Temp.: 100% Precipitation: 100% Snowfall: 90% Snow Depth: 90.4%
Check Station Metadata or Metadata graphics for more detail about data completeness.

Western Regional Climate Center, mailto:wrcc@dri.edu

ALASKA

AVERAGE WIND SPEED - MPH

STATION	ID	Years	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
AMBLER AIRPORT AWOS	PAFM	1996-2006	6.7	8.5	7.9	7.7	6.7	5.3	4.8	5.1	6.1	6.8	6.6	6.4	6.5
ANAKTUVUK PASS AWOS	PAKP	1996-2006	8.9	9.0	9.1	8.6	8.6	8.5	8.1	8.5	7.6	8.2	9.3	9.1	8.6
ANCHORAGE INTL AP ASOS	PANC	1996-2006	6.7	6.0	7.5	7.7	8.7	8.2	7.8	6.8	7.1	6.6	6.1	6.1	7.1
ANCHORAGE-ELMENDORF AFB	PAED	1996-2006	7.3	6.9	8.1	7.6	7.8	7.2	6.8	6.4	6.5	6.7	6.5	7.2	7.1
ANCHORAGE-LAKE HOOD SEA	PALH	1996-2006	4.9	4.2	5.8	5.7	6.6	6.3	5.8	4.8	5.3	5.2	4.7	4.4	5.3
ANCHORAGE-MERRILL FLD	PAMR	1996-2006	3.2	3.1	4.4	4.7	5.5	5.2	4.8	4.0	3.9	3.8	3.1	2.9	4.0
ANIAK AIRPORT AWOS	PANI	1996-2006	4.9	6.6	6.5	6.4	5.6	4.5	4.2	4.0	4.6	5.5	5.5	4.1	5.1
ANNETTE AIRPORT ASOS	PANT	1996-2006	9.2	8.2	8.9	7.8	7.4	7.0	6.2	6.4	7.2	8.3	8.6	9.8	8.0
ANVIK AIRPORT AWOS	PANV	1996-2006	7.6	7.3	6.9	5.9	5.0	3.9	4.0	4.4	4.7	5.2	5.9	6.3	5.5
ARCTIC VILLAGE AP AWOS	PARC	1996-2006	2.8	2.8	4.2	4.9	5.8	7.0	6.9	6.7	5.2	4.0	2.7	3.3	4.6
ATKA AIRPORT AWOS	PAAK	2000-2006	15.1	15.1	13.1	15.0	13.4	12.4	11.9	10.7	13.5	14.5	14.7	14.4	13.7
BARROW AIRPORT ASOS	PABR	1996-2006	12.2	13.1	12.4	12.1	12.4	11.5	12.6	12.5	12.6	14.0	13.7	13.1	12.7
BARTER ISLAND AIRPORT	PABA	1996-2006	11.2	10.7	10.1	9.5	10.4	9.1	10.0	11.2	11.6	12.4	11.7	13.0	10.9
BETHEL AIRPORT ASOS	PABE	1996-2006	13.8	12.5	12.6	12.1	10.8	9.6	9.6	10.5	10.3	10.9	11.5	11.5	11.3
BETTLES AIRPORT ASOS	PABT	1996-2006	4.3	5.2	5.9	6.5	6.2	5.5	5.6	5.1	5.2	5.3	4.7	4.4	5.3
BIRCHWOOD AIRPORT AWOS	PABV	1996-2006	3.0	2.6	3.8	3.6	4.2	3.5	2.9	2.4	2.8	3.1	2.8	3.3	3.1
BUCKLAND AIRPORT AWOS	PABL	1998-2006	7.7	9.7	8.1	9.2	8.6	8.3	7.3	7.3	7.0	5.5	6.4	6.8	7.6
CAPE LISBURNE LRRS AP	PALU	1996-2006	13.3	13.1	11.5	11.1	11.4	10.8	12.5	13.5	13.6	16.2	13.3	12.3	12.8
CAPE NEWENHAM AIRPORT	PAEH	1996-2006	13.5	15.5	16.9	14.1	12.0	8.5	9.4	12.8	13.4	15.4	17.5	15.7	13.7
CAPE ROMANZOF AIRPORT	PACZ	1996-2006	19.4	18.8	18.3	16.8	13.5	11.9	9.9	12.8	13.7	15.2	18.4	17.9	15.5
CHIGNIK AIRPORT AWOS	PAJC	1996-2006	10.9	9.5	11.9	10.5	9.1	7.5	7.3	8.7	9.9	10.8	11.0	12.1	9.9
COLD BAY AIRPORT ASOS	PACD	1996-2006	15.9	17.2	17.2	17.0	16.9	14.6	14.1	15.0	15.4	16.3	17.6	16.0	16.1
CORDOVA AIRPORT ASOS	PACV	1996-2006	4.3	4.8	5.1	5.4	4.5	3.6	3.0	3.4	4.4	4.6	3.8	5.3	4.3
DEADHORSE AIRPORT ASOS	PASC	1996-2006	12.0	12.2	12.3	11.7	12.9	12.4	12.0	11.2	11.2	11.5	11.4	11.9	11.9
DEERING AIRPORT ASOS	PADE	1998-2006	11.7	14.3	11.7	11.4	9.8	9.5	9.8	10.3	10.6	10.3	10.5	11.2	10.8
DELTA JCT/FT GREELEY AP	PABI	1996-2006	13.2	12.2	10.0	9.6	8.8	7.9	6.8	7.0	8.3	8.9	11.3	12.2	9.7
DILLINGHAM AP AWOS	PADL	1996-2006	10.3	9.6	10.0	8.9	7.8	7.4	7.3	7.2	7.7	8.4	8.7	8.8	8.5
EAGLE AIRPORT ASOS	PAEG	1998-2006	4.1	4.2	2.9	3.9	4.2	3.6	2.8	2.8	3.5	2.9	3.9	3.5	3.5
EGEGIK AIRPORT AWOS	PAII	1996-2006	11.5	13.8	12.7	12.6	11.7	11.1	11.5	11.0	11.6	11.8	11.9	12.0	11.9
EMMONAK AIRPORT AWOS	PAEM	1996-2006	11.8	13.2	11.9	11.8	10.4	9.0	9.1	9.6	9.9	9.8	11.3	10.7	10.7
EUREKA-SKELTON AP	PAZK	1996-2006	3.1	3.2	4.5	4.9	6.3	7.0	6.5	5.5	4.6	3.0	2.3	2.4	4.5
FAIRBANKS INTL AP ASOS	PAFA	1996-2006	1.7	2.3	4.5	5.5	6.4	5.5	5.1	4.8	4.4	3.6	2.2	1.3	3.9
FAIRBANKS-EIELSON AFB	PAEI	1996-2006	4.0	4.3	5.6	6.8	7.3	6.7	6.2	5.5	5.7	4.9	3.8	3.7	5.4
FAIRBANKS-FT WAINWRIGHT	PAFB	1996-2006	4.2	5.0	7.0	8.2	8.9	8.3	8.2	7.3	7.3	5.8	3.9	3.9	6.7
FORT YUKON AWOS	PFYU	1996-2006	2.1	2.9	4.9	5.7	6.1	4.4	4.8	4.3	4.3	4.1	2.4	1.9	4.0
GALENA AIRPORT AWOS	PAGA	1996-2006	3.8	4.6	4.9	5.8	5.6	4.7	5.4	5.3	5.0	5.1	4.6	3.2	4.8
GAMBELL AIRPORT AWOS	PAGM	1996-2006	24.3	24.8	20.9	18.2	15.0	12.4	13.1	15.3	16.5	19.1	24.0	23.7	18.7
GOLOVIN AIRPORT AWOS	PAGL	1998-2006	11.9	15.2	12.6	11.4	8.3	8.0	9.2	10.7	11.4	10.6	11.5	12.0	11.0
GULKANA AIRPORT ASOS	PAGK	1996-2006	2.8	3.8	5.8	7.5	7.9	7.3	7.4	6.9	6.7	4.7	2.8	2.7	5.4
GUSTAVUS AIRPORT AWOS	PAGS	1996-2006	4.8	4.9	6.4	5.8	5.4	4.3	3.8	4.1	5.1	6.0	5.2	5.7	5.1
HAINES AIRPORT ASOS	PAHN	1996-2006	11.8	11.3	11.1	9.8	8.6	7.4	7.5	7.9	8.8	10.1	11.3	11.7	9.8
HEALY RIVER AIRPORT	PAHV	1996-2006	4.6	6.9	6.0	7.4	6.4	5.8	5.3	5.1	5.6	4.7	4.4	4.2	5.5
HOMER AIRPORT ASOS	PAHO	1996-2006	6.6	6.3	7.1	7.3	7.4	6.9	6.3	6.1	6.3	6.2	6.2	7.1	6.6
HOONAH AIRPORT ASOS	PAOH	1996-2006	6.6	5.4	6.5	5.2	5.1	4.3	3.5	3.6	4.3	4.3	5.4	6.2	5.0
HOOPER BAY AIRPORT AWOS	PAHP	1996-2006	16.7	18.3	16.4	14.7	13.2	12.4	12.1	13.9	14.0	13.6	16.4	15.9	14.7
HUSLIA AIRPORT	PAHS	1996-2003	5.2	6.3	5.8	6.1	5.7	4.5	4.5	4.6	4.7	4.8	5.4	4.6	5.2
HYDABURG SEAPLANE BASE	PAHY	1996-2006	8.6	7.8	7.8	7.3	7.2	6.4	5.9	6.2	7.4	8.4	8.2	9.7	7.6
ILIAMNA AIRPORT ASOS	PAIL	1996-2006	11.6	11.7	10.2	10.0	9.4	8.9	8.9	8.7	10.0	10.8	11.9	11.9	10.4
JUNEAU INTL AP ASOS	PAJN	1996-2006	7.4	7.2	8.1	8.0	7.8	6.6	6.7	6.9	8.0	8.1	7.4	8.5	7.6
KAKE AIRPORT AWOS	PAFE	1996-2006	7.4	6.7	7.4	6.5	6.2	5.0	4.9	5.2	6.5	7.6	7.7	8.3	6.6
KALTAG AIRPORT ASOS	PAKV	1998-2006	5.2	5.3	6.8	5.9	5.4	5.0	5.2	4.4	3.8	4.3	4.9	5.0	5.1
KENAI AIRPORT ASOS	PAEN	1996-2006	7.6	8.0	8.9	8.4	8.7	8.3	8.3	7.1	7.5	7.2	7.1	7.7	7.9
KETCHIKAN INTL AP ASOS	PAKT	1996-2006	7.8	7.8	7.9	8.2	7.9	7.6	7.4	7.2	7.6	7.9	7.8	8.6	7.8
KING SALMON AP ASOS	PAKN	1996-2006	9.5	9.7	10.1	10.3	9.5	8.5	8.5	8.5	8.6	9.0	8.9	8.2	9.1
KIVALINA AIRPORT ASOS	PAVL	1998-2006	12.5	13.9	13.1	12.3	10.6	10.0	10.7	13.0	12.4	13.8	14.2	13.7	12.5
KLAWOCK AIRPORT ASOS	PAKW	1997-2006	5.1	3.3	4.7	3.9	4.3	4.1	3.7	3.5	3.7	3.9	4.4	4.7	4.1
KODIAK AIRPORT ASOS	PADQ	1996-2006	12.2	11.0	11.9	11.0	9.8	9.2	7.8	7.9	9.4	10.7	11.4	12.7	10.4
KOTZEBUE AIRPORT ASOS	PAOT	1996-2006	10.6	12.3	11.0	11.6	9.7	10.5	11.5	11.9	11.9	12.4	14.0	10.4	11.5
KOYUK AIRPORT AWOS	PAKK	1996-2006	10.0	10.1	9.5	9.3	7.5	7.4	7.8	8.0	7.4	7.0	7.9	9.3	8.4
MCGRATH AIRPORT ASOS	PAMC	1996-2006	2.0	2.5	4.5	5.5	5.8	4.8	4.5	4.4	4.6	4.2	2.6	1.5	3.9
MCKINLEY NATL PARK AP	PAIN	1996-2006	3.6	4.5	5.6	5.8	5.4	4.7	4.2	4.1	4.3	4.7	3.7	3.6	4.5
MEKORYUK AIRPORT AWOS	PAMY	1996-2006	15.2	16.6	15.4	15.3	12.1	10.5	10.6	13.2	13.9	15.1	17.1	15.7	14.2
METLAKATLA SEAPLANE BASE	PAMM	1996-2006	9.9	8.2	9.0	7.5	7.0	6.4	6.0	5.8	6.5	7.9	9.0	10.2	7.8
MIDDLETON ISLAND AP AWOS	PAMD	1996-2006	17.4	16.5	15.2	14.3	11.4	10.6	9.0	9.6	13.0	15.1	15.7	18.2	13.9
MINCHUMINA AP AWOS	PAMH	1996-2006	1.7	1.4	2.6	2.8	3.3	2.8	3.0	2.4	2.2	2.1	1.3	1.1	2.2
NABESNA-DEVILS MTN LOD	PABN	1996-2006	4.6	4.2	5.0	5.8	7.3	6.7	5.6	5.0	4.4	3.8	3.5	3.7	4.9
NENANA AIRPORT ASOS	PANN	1996-2006	5.0	5.0	6.2	6.0	6.1	4.9	4.4	4.1	5.2	5.3	5.1	4.7	5.1
NOATAK AIRPORT AWOS	PAWN	1996-2006	6.3	7.9	7.7	8.1	7.5	6.9	6.9	7.4	7.6	7.9	7.7	6.6	7.4
NOME AIRPORT ASOS	PAOM	1996-2006	9.1	11.5	9.5	9.4	9.3	8.8	9.5	10.1	10.0	9.4	11.0	9.4	9.8
NORTHWAY AIRPORT ASOS	PAOR	1996-2006	0.9	1.3	3.2	4.5	5.8	5.3	4.8	4.0	4.1	2.8	1.2	1.2	3.1
NUIQSUT AIRPORT ASOS	PAQT	1996-2006	9.1	9.6	9.7	10.1	10.9	10.9	10.9	10.0	9.4	10.0	8.6	8.4	9.8
PALMER AIRPORT AWOS	PAAQ	1996-2006	6.4	7.5	8.4	8.8	8.1	7.1	6.3	5.7	6.8	5.9	6.0	6.8	7.0

PETERSBURG AIRPORT AWOS	PAPG	1996-2006	3.4	3.4	4.1	4.2	4.4	3.8	3.1	3.0	3.1	3.7	3.4	4.0	3.6
POINT HOPE AP AWOS	PAPO	1996-2006	16.4	15.9	14.7	12.9	12.0	12.2	13.0	15.0	16.0	16.8	18.2	17.3	15.1
PORT HEIDEN AP AWOS	PAPH	1996-2006	13.5	14.5	13.8	13.1	12.2	11.5	10.5	11.8	13.0	13.0	14.3	14.5	12.9
PORTAGE AIRPORT	PATO	1998-2006	10.4	11.3	9.1	9.7	8.4	8.1	8.6	8.2	8.8	10.0	9.3	10.8	9.4
SAND POINT AIRPORT AWOS	PASD	1996-2006	11.8	11.7	12.7	11.7	9.7	7.8	7.7	9.1	11.5	13.5	14.0	12.8	11.1
SAVOONGA AIRPORT AWOS	PASA	1996-2006	12.7	12.2	11.6	11.5	10.7	9.2	9.8	11.7	12.5	15.4	19.4	15.1	12.6
SELAWIK AIRPORT AWOS	PASK	1996-2006	9.1	11.0	10.3	10.1	9.1	9.6	8.5	8.5	8.8	8.4	10.1	8.5	9.3
SELDOVIA AIRPORT ASOS	PASO	1996-2006	3.4	3.4	4.3	3.7	4.4	4.2	4.5	3.7	3.5	3.6	3.3	3.9	3.8
SEWARD AIRPORT ASOS	PAWD	1996-2006	11.7	9.4	10.0	8.6	7.6	6.5	5.8	6.7	7.4	9.4	10.4	11.8	8.7
SHISHMAREF AIRPORT AWOS	PASH	1996-2006	13.2	13.4	12.3	11.7	9.9	9.3	11.7	13.1	13.5	14.0	15.9	13.1	12.5
SITKA AIRPORT ASOS	PASI	1996-2006	9.1	8.3	8.5	7.5	7.0	6.2	5.6	5.8	7.1	8.7	9.1	10.3	7.8
SKAGWAY AIRPORT ASOS	PAGY	1996-2006	14.9	11.6	12.2	9.4	10.1	10.0	9.5	8.5	8.9	9.4	11.4	11.9	10.6
SLANA AIRPORT	PADT	1996-2006	5.8	4.8	7.4	7.6	8.3	7.8	6.9	6.3	6.3	6.3	5.1	5.6	6.6
SLEETMUTE AIRPORT AWOS	PASL	1996-2006	1.9	1.9	3.2	3.1	3.7	2.6	2.2	2.1	1.9	2.3	1.8	1.6	2.4
SOLDOTNA AIRPORT AWOS	PASX	1996-2006	3.1	2.8	3.5	4.2	4.8	4.5	3.8	3.3	3.3	3.2	2.9	2.8	3.5
ST MARYS AIRPORT ASOS	PASM	1996-2006	13.8	14.9	13.9	12.2	10.6	9.0	9.0	9.9	9.9	9.7	12.6	11.7	11.4
ST PAUL ISLAND AP ASOS	PASN	1996-2006	18.8	17.7	16.2	16.6	13.6	12.0	11.5	12.6	14.8	16.8	18.3	17.4	15.5
ST. GEORGE AIRPORT ASOS	PAPB	1996-2006	20.7	19.4	18.1	18.1	15.3	12.9	11.6	12.5	15.3	18.1	19.5	18.8	16.7
TALKEETNA AIRPORT ASOS	PATK	1996-2006	5.4	4.6	5.1	4.1	4.0	4.0	3.7	2.8	3.0	3.2	4.3	4.6	4.1
TANANA AIRPORT ASOS	PATA	1996-2006	4.9	6.2	6.6	6.2	6.1	5.4	5.3	5.1	5.2	5.5	4.9	4.3	5.5
TIN CITY AIRPORT	PATC	1996-2006	25.9	28.4	23.3	21.4	16.0	16.9	14.0	15.9	15.5	16.4	18.8	22.8	19.4
TOGIAK AIRPORT AWOS	PATG	1996-2006	11.5	12.6	12.3	11.9	10.8	9.5	10.0	10.5	11.0	10.7	11.8	11.9	11.2
UNALAKLEET AIRPORT AWOS	PAUN	1996-2006	14.5	16.5	13.6	11.1	8.8	7.7	9.2	9.8	9.9	10.9	14.4	13.0	11.6
UNALASKA AIRPORT ASOS	PADU	1996-2006	12.0	12.0	12.6	12.3	10.5	8.7	7.9	8.8	11.1	13.0	13.2	12.1	11.2
UTOPIA CR-INDIAN MTN AP	PAIM	1996-2006	6.4	6.3	7.3	6.4	6.1	5.3	5.0	5.0	4.8	5.4	5.5	5.9	5.8
VALDEZ AIRPORT AWOS	PAVD	1996-2006	3.5	2.4	4.5	3.1	4.3	4.3	3.4	2.7	2.6	3.1	3.4	3.2	3.4
VALDEZ WSO	PAVW	1996-2005	7.9	5.1	6.9	5.2	5.8	6.0	4.8	4.2	4.4	6.2	6.2	7.4	5.8
WAINWRIGHT AP ASOS	PAWI	1996-2006	10.0	11.4	11.9	12.1	12.7	11.5	12.0	11.7	11.9	12.7	11.8	10.8	11.7
WASILLA AIRPORT AWOS	PAWS	1998-2006	5.9	5.8	7.6	6.1	4.9	4.3	4.1	4.1	4.9	5.6	5.3	5.9	5.4
WHITTIER AIRPORT	PAWR	1996-2006	10.4	9.0	9.0	8.1	6.9	6.3	5.4	6.6	7.8	9.2	9.8	10.7	8.3
WRANGELL AIRPORT AWOS	PAWG	1996-2006	8.9	7.8	8.6	7.2	6.5	5.1	3.9	4.3	5.9	7.9	8.8	9.5	7.0
YAKUTAT AIRPORT ASOS	PAYA	1996-2006	5.2	4.9	5.5	5.2	5.1	4.5	4.5	4.6	5.1	5.4	4.7	5.8	5.1

ARIZONA

AVERAGE WIND SPEED - MPH

STATION	ID	Years	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
CASA GRANDE AP AWOS	KCGZ	1996-2006	4.7	5.2	5.6	6.5	6.1	6.4	6.5	5.9	5.5	5.5	4.8	4.8	5.6
CHANDLER-WILLIAMS GTWY	KIWA	2001-2006	5.2	5.6	6.6	7.4	7.3	7.7	7.6	7.0	7.0	6.2	5.8	5.1	6.6
DOUGLAS AIRPORT ASOS	KDUG	1996-2006	7.2	8.1	9.0	10.3	9.3	9.4	8.2	6.9	7.2	7.6	7.0	6.8	8.0
FLAGSTAFF AIRPORT ASOS	KFLG	1996-2006	6.2	7.1	7.1	8.9	8.0	7.8	5.6	4.4	5.4	5.8	6.2	6.6	6.6
GILA BEND AIRPORT	KGBN	1996-2006	6.9	7.4	7.8	9.2	8.5	9.0	8.2	7.6	7.5	7.3	6.5	6.6	7.7
GLENDALE-LUKE AFB	KLUF	1996-2006	7.3	8.0	8.7	9.8	9.6	10.1	9.9	9.3	8.4	7.9	7.4	6.9	8.7
GRAND CANYON AP ASOS	KGCN	1996-2006	5.8	6.8	6.8	8.3	7.7	7.7	5.6	4.9	5.9	5.9	5.7	5.9	6.4
KINGMAN AIRPORT ASOS	KIGM	1996-2006	7.9	9.0	9.8	11.3	11.5	12.3	10.9	10.3	9.2	8.7	7.7	7.8	9.7
NOGALES AIRPORT ASOS	KOLS	1999-2006	5.1	6.2	6.8	7.7	7.1	7.4	5.7	4.6	5.4	5.7	5.0	5.1	5.9
PAGE AIRPORT ASOS	KPGA	1996-2006	3.3	4.2	5.4	7.0	6.7	6.6	5.9	5.4	5.1	4.4	3.5	3.0	5.0
PHOENIX-DEER VALLEY AP	KDVT	1996-2006	5.0	5.8	6.5	8.1	7.7	8.0	8.0	7.7	7.2	6.5	5.6	5.1	6.8
PHOENIX-SKY HARBOR AP	KPHX	1996-2006	4.9	5.6	6.4	7.6	7.3	7.6	7.6	7.2	6.4	5.7	5.1	4.6	6.3
PRESCOTT AIRPORT ASOS	KPRC	1996-2006	6.3	7.2	8.1	9.3	9.0	9.2	7.7	6.8	7.2	7.1	6.4	6.3	7.5
SAFFORD AIRPORT ASOS	KSAD	1997-2006	7.1	8.2	8.8	9.9	9.6	10.0	9.6	8.2	8.0	7.8	7.3	7.4	8.4
SCOTTSDALE AIRPORT ASOS	KSDL	1996-2006	3.0	3.9	4.5	5.7	5.4	5.8	6.0	5.5	5.0	4.1	3.4	3.0	4.6
SIERRA VISTA-FT HUACHUC	KFHU	1996-2006	10.2	11.5	11.9	12.9	12.1	11.8	9.8	8.6	8.9	9.4	9.1	9.2	10.5
ST JOHNS AP ASOS	KSJN	1999-2006	6.4	7.7	8.8	10.8	10.0	9.6	8.1	6.8	7.1	6.6	6.5	5.6	7.8
TUCSON AIRPORT ASOS	KTUS	1996-2006	6.7	7.2	7.7	8.3	8.1	8.3	8.0	7.5	7.6	7.6	7.0	6.8	7.6
TUCSON-DAVIS MONTHAN AF	KDMA	1996-2006	7.5	7.9	8.1	8.7	8.5	8.9	8.9	8.3	7.9	7.9	7.6	7.6	8.1
WINDOW ROCK AP ASOS	KRQE	1998-2006	4.4	5.5	6.4	8.4	7.7	7.2	5.3	4.4	4.9	4.7	4.6	4.1	5.6
WINSLOW AIRPORT ASOS	KINW	1996-2006	6.6	7.7	9.0	11.0	10.6	10.4	8.9	7.9	7.8	7.3	6.7	6.4	8.3
YUMA MCAS-INTL AP ASOS	KNYL	1996-2006	7.1	7.2	7.6	8.7	8.2	8.6	9.1	8.6	7.2	6.7	6.5	7.4	7.7

CALIFORNIA

AVERAGE WIND SPEED - MPH

STATION	ID	Years	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
ALTURAS AIRPORT ASOS	KAAT	1998-2006	4.9	5.5	6.4	7.2	7.0	6.7	6.0	5.3	4.4	4.1	4.4	4.9	5.5
ARCATA AIRPORT ASOS	KACV	1996-2006	6.9	7.4	7.4	7.2	7.0	7.2	6.3	5.6	5.3	5.1	6.0	7.1	6.5
AUBURN AIRPORT AWOS	KAUN	2002-2006	4.3	5.2	6.1	5.9	5.6	5.4	5.8	5.2	5.1	4.3	4.1	5.5	5.2
AVALON-CATALINA AP ASOS	KAVX	2000-2006	7.9	8.8	8.8	9.2	6.8	5.7	5.4	5.5	6.4	6.7	7.5	8.0	7.2
BAKERSFIELD AP ASOS	KBFL	1996-2006	4.6	5.6	6.0	7.1	7.3	7.7	7.2	6.8	6.3	5.2	4.5	4.8	6.1
BEALE AFB	KBAB	1996-2006	6.8	8.0	7.4	8.3	7.6	7.9	7.2	6.8	6.7	6.7	6.6	7.7	7.3
BISHOP AIRPORT ASOS	KBIH	1996-2006	6.8	8.2	9.6	10.4	9.2	8.8	8.1	8.3	8.1	8.0	7.1	7.1	8.3

BLUE CANYON ASOS	KBLU	1996-2006	5.8	5.9	5.9	5.9	5.2	4.8	4.4	4.4	5.1	5.3	5.4	6.9	5.4
BLYTHE AIRPORT ASOS	KBLH	1996-2006	6.6	7.2	7.8	9.3	8.9	9.4	9.6	8.7	7.5	6.8	6.1	6.7	7.9
BURBANK AIRPORT ASOS	KBUR	1996-2006	4.8	5.8	5.7	6.7	6.4	6.3	6.8	6.1	5.5	4.8	4.2	4.8	5.6
CAMARILLO AIRPORT ASOS	KCMA	1996-2006	6.3	7.4	6.4	6.7	5.8	5.6	5.1	4.9	4.8	5.4	6.0	7.5	6.0
CAMP PENDLETON MCAS AP	KNFG	1996-2006	3.2	3.9	4.1	4.8	4.8	4.8	4.8	4.5	4.1	3.7	3.1	3.0	4.1
CAMPO ASOS	KCZZ	1997-2006	8.5	9.1	8.4	8.7	8.0	7.9	7.4	7.2	7.5	8.1	8.1	9.5	8.2
CARLSBAD AIRPORT ASOS	KCRQ	1996-2006	4.3	5.4	5.3	5.8	5.6	5.5	4.9	4.8	4.4	4.3	4.1	4.3	4.9
CHINA LAKE-ARMITAGE FLD	KNID	1996-2006	6.4	7.4	9.1	11.1	10.1	10.2	8.9	8.8	7.9	7.2	6.4	6.2	8.3
CHINO AIRPORT ASOS	KCNO	1996-2006	4.5	5.2	5.7	6.5	7.2	7.2	6.9	6.5	5.6	5.0	4.5	4.8	5.8
CONCORD-BUCHANON FIELD	KCCR	1996-2006	5.6	6.2	7.6	9.1	9.9	11.4	11.1	10.0	8.1	6.7	5.4	5.7	8.1
CRESCENT CITY AP ASOS	KCEC	1996-2006	10.0	10.0	9.8	9.4	8.5	8.7	7.0	6.5	7.2	7.5	8.6	9.9	8.6
DAGGETT-BARSTOW AP ASOS	KDAG	1996-2006	8.5	9.5	11.5	14.3	14.8	14.6	12.1	11.2	10.5	9.7	8.7	7.9	11.1
EDWARDS AFB	KEDW	1996-2006	8.7	10.1	11.1	13.1	13.7	13.8	12.0	10.8	9.6	9.2	8.3	8.2	10.8
EL CENTRO NAF	KNJK	1996-2006	5.7	6.7	8.2	10.7	8.7	8.9	7.5	6.7	7.1	6.9	5.4	5.4	7.3
FAIRFIELD-TRAVIS AFB	KSUU	1996-2006	8.0	9.5	11.0	12.9	14.9	16.9	17.7	16.2	14.3	11.7	8.4	8.9	12.7
FRESNO AIRPORT ASOS	KFAT	1996-2006	4.3	5.1	5.8	7.4	8.8	9.1	7.9	7.2	6.1	4.6	3.9	4.1	6.1
FULLERTON AIRPORT ASOS	KFUL	1996-2006	3.3	4.3	4.4	5.1	4.8	4.9	4.4	4.0	3.8	3.3	3.1	3.2	4.0
HANFORD AIRPORT ASOS	KHJO	1998-2006	3.4	4.2	5.2	6.5	7.9	7.8	6.5	6.3	5.2	4.0	3.2	3.4	5.3
HAWTHORNE AIRPORT ASOS	KHHR	1998-2006	3.3	4.7	5.4	6.4	6.1	6.2	6.1	5.7	5.2	4.2	3.2	3.0	4.9
HAYWARD AIRPORT ASOS	KHWD	1996-2006	5.5	6.8	7.7	9.0	9.2	9.4	8.6	8.2	7.1	6.0	5.5	5.9	7.4
IMPERIAL AIRPORT ASOS	KIPL	1996-2006	5.8	7.0	8.4	10.5	9.3	9.4	8.3	7.6	7.0	6.6	5.8	5.5	7.5
IMPERIAL BEACH NAS	KNRS	1996-2006	6.6	8.2	8.0	9.3	8.6	8.9	9.0	8.5	8.2	7.2	6.5	7.0	8.0
LANCASTER-WJ FOX FLD	KWJF	1996-2006	8.2	9.8	11.8	14.0	15.3	15.5	13.1	11.4	10.1	9.3	8.5	8.1	11.2
LEMOORE NAS	KNLC	1996-2006	5.6	6.9	8.2	10.0	10.6	9.8	8.1	7.9	7.5	6.8	6.0	5.9	7.8
LIVERMORE AIRPORT ASOS	KLVK	1998-2006	4.9	5.5	6.0	7.3	8.3	9.3	9.1	8.4	6.8	5.6	4.7	5.2	6.8
LOMPOC AIRPORT AWOS	KLPC	1996-2006	5.7	6.9	7.2	7.6	8.6	8.5	7.7	7.1	6.1	6.0	6.1	6.0	7.0
LONG BEACH AIRPORT ASOS	KLGB	1996-2006	3.9	5.1	5.3	6.2	5.9	6.0	6.0	5.8	5.3	4.5	3.8	3.8	5.1
LOS ANGELES INTL AP	KLAX	1996-2006	6.9	8.3	8.2	9.3	8.4	8.4	8.3	7.9	7.7	7.0	6.5	6.6	7.8
LOS ANGELES-DOWNTOWN	KCQT	1999-2006	1.0	1.3	1.7	2.1	1.8	1.6	1.4	1.3	1.0	0.8	0.8	0.8	1.2
MADERA AIRPORT ASOS	KMAE	1998-2006	5.2	5.9	6.2	7.4	8.4	8.6	7.5	7.1	6.0	5.2	4.7	5.3	6.4
MARYSVILLE-YUBA CTY AP	KMYV	1996-2006	6.8	8.0	8.1	8.6	8.3	8.6	7.9	7.3	6.9	6.7	6.3	7.6	7.6
MERCED AIRPORT ASOS	KMCE	1998-2006	4.7	5.5	5.9	7.0	8.1	8.4	7.7	7.1	5.9	5.0	4.4	5.1	6.2
MIRAMAR MCAS	KNKX	1996-2006	6.0	6.6	6.0	6.5	5.7	5.7	5.3	5.4	5.5	5.6	5.7	6.1	5.8
MODESTO AIRPORT ASOS	KMOD	1996-2006	5.0	6.2	7.0	7.8	8.9	9.4	8.6	8.1	6.9	6.0	5.0	5.6	7.0
MONTAGUE-SISKIYOU CY AP	KSIY	1996-2006	5.3	6.6	7.2	6.9	7.1	7.7	6.4	6.2	5.4	5.0	5.0	5.4	6.1
MONTEREY AIRPORT ASOS	KMRY	1996-2006	5.2	6.1	6.5	7.2	7.3	7.6	6.7	6.3	5.3	5.1	5.1	5.6	6.2
MOUNT SHASTA ASOS	KMHS	1996-2006	2.3	3.0	3.7	3.8	3.4	3.7	1.8	1.5	2.3	2.5	2.3	2.9	2.7
MOUNTAIN VIEW-MOFFETT	KNUQ	1996-2006	4.2	5.6	6.0	6.8	7.5	8.0	7.7	7.1	5.8	4.8	4.2	4.8	6.0
NAPA AIRPORT ASOS	KAPC	1997-2006	7.2	6.9	7.4	8.9	9.3	10.4	10.2	9.5	7.7	6.4	5.8	7.1	8.1
NEEDLES AIRPORT ASOS	KEED	2001-2006	8.0	8.0	8.2	9.4	9.0	9.3	8.5	8.0	8.2	7.5	7.8	7.6	8.3
NORTH ISLAND NAS	KNZY	1996-2006	5.5	6.9	7.0	7.9	7.1	7.5	7.1	7.0	6.9	6.0	5.3	5.3	6.6
OAKLAND INTL AP ASOS	KOAK	1996-2006	6.8	8.3	9.0	10.4	10.4	10.4	10.2	9.6	8.5	7.5	7.0	7.6	8.8
OCEANSIDE AIRPORT ASOS	KOKB	1999-2006	3.9	4.4	4.4	4.7	4.8	4.8	4.5	4.2	4.0	3.6	3.5	3.5	4.2
ONTARIO INTL AP ASOS	KONT	1996-2006	5.2	5.7	6.3	6.9	7.2	7.3	7.0	6.5	5.8	5.6	5.2	5.7	6.2
OROVILLE AIRPORT ASOS	KOVE	1998-2006	5.9	7.0	7.2	7.7	7.1	7.0	6.4	5.9	5.6	5.5	5.5	6.6	6.4
OXNARD AIRPORT ASOS	KOXR	1996-2006	7.1	8.2	7.7	8.3	7.0	7.1	7.2	6.9	6.6	6.4	6.8	7.7	7.2
PALM SPRINGS AP ASOS	KPSP	1996-2006	5.7	5.9	7.3	9.0	9.6	9.2	8.2	7.5	7.5	6.8	6.0	5.7	7.3
PALMDALE AIRPORT ASOS	KPMD	1996-2006	8.1	9.2	10.4	12.5	12.6	12.8	11.5	10.3	9.3	8.9	7.9	8.1	10.1
PALO ALTO AIRPORT	KPAO	1996-2006	7.0	8.9	9.8	10.3	11.2	11.6	11.4	10.7	9.3	8.2	7.0	6.8	9.4
PASO ROBLES AP ASOS	KPRB	1996-2006	5.0	5.9	6.3	7.7	9.1	9.9	8.6	7.9	6.5	5.5	4.7	5.0	6.8
POINT MUGU NAS	KNTD	1996-2006	7.3	8.5	7.8	8.3	7.4	7.2	6.8	6.6	6.2	6.6	6.9	8.4	7.3
POINT PIEDRAS BLANCAS	K87Q	1996-2005	9.2	10.2	10.8	12.9	14.1	13.0	11.2	11.4	10.0	9.6	8.7	9.2	10.9
PORTERVILLE AP AWOS	KPTV	1996-2006	3.7	4.3	4.5	5.2	5.7	6.0	5.9	5.6	5.1	4.3	3.7	3.7	4.8
RAMONA AIRPORT ASOS	KRNM	1998-2006	4.5	5.3	5.0	5.2	5.0	5.2	5.2	4.9	4.6	4.6	4.4	4.6	4.9
RED BLUFF AIRPORT ASOS	KRBL	1996-2006	7.4	8.9	8.7	8.9	8.5	8.8	7.2	7.0	7.5	7.7	7.5	8.7	8.0
REDDING AIRPORT ASOS	KRDD	1996-2006	5.2	6.8	6.4	6.9	6.6	6.9	5.7	5.4	5.7	5.7	4.9	6.2	6.0
RIVERSIDE AIRPORT ASOS	KRAL	1998-2006	5.0	5.2	4.9	5.1	5.6	5.8	5.5	5.1	4.4	4.1	4.3	5.4	5.0
RIVERSIDE-MARCH AFB	KRIV	1996-2006	5.2	5.9	5.4	6.0	6.2	6.2	6.2	6.0	5.5	5.3	5.0	5.6	5.7
SACRAMENTO EXEC AP ASOS	KSAC	1996-2006	5.5	6.4	6.8	7.6	7.5	8.2	7.8	7.2	6.3	5.8	5.0	6.0	6.6
SACRAMENTO INTL AP ASOS	KSMF	1996-2006	6.9	8.0	7.9	8.7	8.6	9.4	9.0	8.4	7.6	7.3	6.4	7.7	8.0
SACRAMENTO-MATHER AP	KMHR	2000-2006	4.8	5.8	6.5	6.8	6.7	7.2	6.9	6.0	5.7	5.2	4.6	6.2	6.0
SACRAMENTO-MCCLELLAN AF	KMCC	1992-2000	7.7	8.1	7.5	8.0	7.9	8.7	8.8	8.5	7.4	6.8	6.3	7.9	7.8
SALINAS AIRPORT ASOS	KSNS	1996-2006	7.3	8.1	7.7	8.4	9.2	9.8	9.1	8.4	7.5	6.9	6.9	7.8	8.1
SAN CARLOS AIRPORT	KSQL	1996-2006	8.2	9.5	10.6	11.5	12.1	12.7	11.8	11.3	10.3	9.4	8.5	8.6	10.5
SAN DIEGO-BROWN FIELD	KSDM	1996-2006	5.6	6.7	6.0	6.4	5.9	5.6	5.3	5.0	5.0	5.1	5.5	6.0	5.7
SAN DIEGO-GILLESPIE FLD	KSEE	1996-2006	3.8	5.4	6.1	7.4	7.1	7.0	6.9	6.8	6.4	5.5	4.1	3.7	5.9
SAN DIEGO-LINDBERGH FLD	KSAN	1996-2006	4.8	6.1	6.6	7.4	7.0	7.2	6.9	6.8	6.5	5.6	4.8	4.5	6.1
SAN DIEGO-MONTGOMERY AP	KMYF	1996-2006	4.6	5.6	5.9	6.7	6.3	6.5	6.0	6.0	5.9	5.2	4.6	4.5	5.6
SAN FRANCISCO INTL AP	KSFO	1996-2006	6.7	8.2	10.2	12.1	13.6	14.1	12.9	12.3	10.6	9.0	7.2	7.2	10.3
SAN JOSE INTL AP ASOS	KSJC	1996-2006	5.4	6.6	7.0	8.0	8.2	8.4	7.7	7.4	6.5	5.8	5.3	6.0	6.8
SAN JOSE-REID HILLVIEW	KRHV	1996-2006	5.3	7.2	8.1	9.3	9.7	9.8	8.8	8.5	7.5	6.5	5.5	5.9	7.7
SAN LUIS OBISPO AP ASOS	KSBP	1996-2006	5.4	6.5	7.4	8.2	9.3	8.5	7.6	7.7	7.1	6.5	5.8	5.3	7.1
SAN NICOLAS ISLAND NAS	KNSI	1996-2006	11.1	13.1	13.0	14.8	13.2	12.5	11.6	12.0	11.9	10.8	11.8	11.8	12.3
SANDBURG ASOS	KSDB	1996-2006	14.3	15.4	14.6	14.7	15.5	14.5	12.1	11.9	12.1	13.1	14.1	15.5	14.0
SANTA ANA AIRPORT ASOS	KSNA	1996-2006	4.3	5.2	5.7	6.4	6.7	7.0	6.7	6.3	5.6	4.9	4.4	4.4	5.6
SANTA BARBARA AP ASOS	KSBA	1996-2006	4.2	5.7	5.8	6.6	6.0	6.0	5.9	5.5	5.2	4.5	4.1	4.1	5.3
SANTA MARIA AP ASOS	KSMX	1996-2006	5.7	6.7	7.2	7.8	8.3	7.7	6.5	6.1	5.6	5.7	5.8	5.8	6.5
SANTA MONICA AP ASOS	KSMO	1996-2006	5.1	6.1	6.2	7.0	6.7	6.8	6.5	6.2	5.7	5.1	5.0	5.3	6.0

SANTA ROSA AIRPORT ASOS	KSTS	1996-2006	3.5	4.8	5.4	5.8	6.0	6.3	5.8	5.3	4.7	4.2	3.6	4.1	4.9
SOUTH LAKE TAHOE AP ASOS	KTVL	1996-2006	5.5	5.7	6.7	7.5	6.9	6.6	5.9	5.8	5.6	5.4	6.0	6.1	6.1
STOCKTON AIRPORT ASOS	KSCK	1996-2006	6.2	7.3	7.4	8.8	9.6	10.0	8.7	8.3	7.4	6.4	5.7	7.0	7.7
THERMAL AIRPORT ASOS	KTRM	1996-2006	5.1	5.7	7.6	9.2	9.3	9.0	7.4	6.6	6.8	6.2	5.2	4.9	6.8
TORRANCE AIRPORT	KTOA	1996-2006	5.6	7.2	7.9	8.7	8.7	9.4	9.5	9.2	8.5	7.1	6.0	5.7	7.8
TRUCKEE AIRPORT AWOS	KTRK	1996-2006	3.5	4.0	4.8	5.5	5.5	5.0	4.8	4.6	4.2	3.7	4.0	3.8	4.4
TWENTYNINE PALMS EAF	KNXP	1996-2006	7.0	7.8	8.5	10.4	9.5	9.7	8.3	7.8	6.9	6.7	6.6	6.9	8.0
UKIAH AIRPORT ASOS	KUKI	1996-2006	2.6	3.5	4.1	4.6	4.9	5.5	4.5	4.0	3.2	2.7	2.5	2.9	3.7
VACAVILLE AIRPORT ASOS	KVCB	1998-2006	4.4	5.5	6.3	7.1	7.0	7.5	7.3	6.7	5.9	5.5	4.4	4.9	6.0
VAN NUYS AIRPORT ASOS	KVNY	1996-2006	5.9	6.3	5.5	6.0	5.7	5.7	5.6	5.0	4.6	4.5	5.1	6.5	5.5
VISALIA AIRPORT AWOS	KVIS	1996-2006	3.3	4.0	4.3	5.1	5.9	5.9	4.9	4.4	3.8	3.2	3.0	3.1	4.2
WATSONVILLE AP ASOS	KWVI	1998-2006	3.2	3.8	3.7	5.1	5.1	5.2	4.9	4.6	4.1	3.6	3.1	3.4	4.1

COLORADO

AVERAGE WIND SPEED - MPH

STATION	ID	Years	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
AKRON AIRPORT ASOS	KAKO	1996-2006	11.5	12.5	13.1	14.2	12.7	12.6	11.5	11.2	11.5	12.1	12.0	12.0	12.2
ALAMOSA AIRPORT ASOS	KALS	1996-2006	5.7	6.8	8.8	10.8	10.0	9.5	7.1	6.6	7.1	6.9	6.2	5.4	7.5
ASPEN-PITKIN COUNTY AP	KASE	1996-2006	5.1	5.6	6.4	7.5	7.6	7.7	7.1	6.9	6.9	6.2	5.2	5.1	6.4
AURORA-BUCKLEY AFB	KBKF	1996-2006	8.3	8.6	9.3	10.1	8.6	8.4	7.9	7.6	7.6	7.9	8.0	8.6	8.4
BOULDER-JEFFCO AP ASOS	KBJC	1996-2006	11.0	10.3	10.8	11.1	10.4	10.1	9.5	9.3	9.2	9.2	9.6	11.0	10.1
BURLINGTON AIRPORT ASOS	KITR	1997-2006	11.2	12.5	13.2	14.0	13.1	12.9	11.8	10.9	11.9	11.9	11.8	11.5	12.2
COLORADO SPRGS AP ASOS	KCOS	1996-2006	8.8	9.5	10.6	12.3	10.9	10.6	9.2	8.9	9.1	9.7	9.0	9.2	9.8
CORTEZ AIRPORT ASOS	KCEZ	1996-2006	5.8	6.5	7.6	8.8	8.5	8.4	6.8	6.3	6.6	6.8	6.1	6.0	7.0
CRAIG AIRPORT AWOS	KCAG	1996-2006	4.0	4.5	5.7	7.6	6.8	6.9	5.8	5.7	5.4	5.1	4.3	3.9	5.4
DENVER INTL AP ASOS	KDEN	1996-2006	9.7	10.0	10.8	11.9	11.0	10.7	10.3	10.1	9.9	9.9	9.6	10.1	10.3
DENVER-CENTENNIAL AP	KAPA	1996-2006	8.3	8.7	9.3	10.5	9.5	9.6	8.8	8.4	8.4	8.1	8.1	8.5	8.8
DURANGO AIRPORT ASOS	KDRO	1996-2006	4.6	5.5	6.6	7.9	7.6	7.3	6.3	5.8	5.6	5.7	4.9	4.6	6.0
EAGLE AIRPORT ASOS	KEGE	1996-2006	3.9	4.6	5.9	7.2	7.1	7.1	5.3	5.1	5.1	4.9	3.8	3.6	5.3
FORT CARSON-BUTTS AAF	KFCS	1996-2006	9.7	11.0	12.1	13.0	11.3	11.4	9.8	9.1	9.5	10.1	9.8	11.0	10.6
FORT COLLINS AP ASOS	KFNL	1996-2006	6.2	7.1	7.9	8.9	7.6	7.2	6.9	6.7	6.4	6.5	6.3	6.6	7.0
GRAND JUNCTION AP ASOS	KGJT	1996-2006	5.1	6.5	7.9	9.7	9.5	9.9	9.6	9.1	8.5	7.6	5.7	5.3	7.8
GREELEY AIRPORT AWOS	KGXY	1996-2006	6.0	7.1	8.3	9.7	8.3	7.4	6.1	5.8	5.8	6.1	6.1	6.0	6.8
GUNNISON AIRPORT AWOS	KGUC	1996-2006	2.7	3.6	5.3	7.3	6.6	6.3	5.3	4.9	4.7	4.8	3.4	2.6	4.8
HAYDEN AIRPORT AWOS	KHDN	1996-2006	6.8	6.8	7.2	8.5	8.3	8.5	8.0	8.0	7.8	7.6	6.8	6.8	7.6
LA JUNTA AIRPORT ASOS	KLHX	1996-2006	8.9	9.9	11.3	12.9	11.5	11.9	10.1	9.5	9.5	9.9	9.2	9.4	10.3
LA VETA PASS AWOS	KVTP	2001-2006	18.8	18.0	17.1	17.1	15.8	13.8	12.3	12.1	12.4	16.7	14.2	17.8	15.5
LAMAR AIRPORT ASOS	KLAA	1996-2006	7.9	9.2	10.5	12.1	10.7	11.5	10.2	9.1	9.2	9.0	8.3	8.0	9.6
LEADVILLE AIRPORT ASOS	KLXV	1998-2006	8.2	8.2	8.0	8.6	8.3	7.9	6.2	5.8	6.7	7.5	7.4	8.1	7.6
LIMON AIRPORT ASOS	KLIC	1996-2006	8.3	9.8	10.5	12.2	10.7	10.3	9.0	8.7	8.6	9.3	8.6	8.6	9.5
MEEKER AIRPORT ASOS	KEEO	1997-2006	3.8	4.5	6.0	7.4	7.3	7.5	6.4	6.1	6.1	5.5	4.4	3.6	5.7
MONARCH PASS AWOS	KMYP	2001-2006	24.7	20.6	21.6	21.3	19.7	17.5	13.4	11.4	14.8	19.8	22.5	22.6	18.8
MONTROSE AIRPORT ASOS	KMTJ	1996-2006	5.5	6.2	7.6	8.9	8.9	8.8	7.7	7.1	7.2	6.7	5.9	5.3	7.1
MONUMENT PASS AWOS	KMNH	2001-2006	9.1	9.2	10.1	11.3	9.8	9.6	8.7	8.9	9.1	9.3	9.3	9.3	9.5
PUEBLO AIRPORT ASOS	KPUB	1996-2006	6.8	7.3	8.6	10.2	9.1	9.4	8.3	7.8	7.4	7.7	6.7	7.0	8.0
RED CLIFF PASS ASOS	KCCU	2001-2006	10.1	10.2	12.0	12.5	11.2	9.3	8.5	8.2	9.4	11.1	9.7	10.6	10.2
RIFLE AIRPORT ASOS	KRIL	1997-2006	3.4	4.3	5.9	7.4	7.2	7.1	6.0	5.6	5.5	5.1	3.9	3.2	5.4
SPRINGFIELD AP ASOS	KSPD	1998-2006	10.3	11.6	12.5	14.3	13.2	13.4	11.7	10.8	11.9	11.3	11.1	10.7	11.9
TRINIDAD AIRPORT ASOS	KTAD	1996-2006	9.6	9.9	10.8	12.0	11.0	10.9	9.9	9.2	9.6	9.9	9.3	9.5	10.1
WOLF CREEK PASS ASOS	KCPW	2001-2006	10.8	11.9	12.2	14.7	13.7	12.4	9.2	8.9	9.5	8.9	9.3	11.3	11.2

HAWAII

AVERAGE WIND SPEED - MPH

STATION	ID	Years	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
BRADSHAW ARMY AIRFIELD	PHSF	1996-2006	12.0	11.5	12.0	12.3	11.0	11.7	13.0	12.1	10.8	11.1	11.8	13.5	11.9
HILO INTL AIRPORT ASOS	PHTO	1996-2006	6.5	7.1	7.0	6.9	6.6	6.6	6.4	6.2	6.2	6.1	6.1	6.3	6.5
HONOLULU INTL AP ASOS	PHNL	1996-2006	8.8	9.5	9.9	11.6	10.6	12.1	12.5	12.0	10.7	10.2	9.5	9.4	10.6
KAHULUI AIRPORT ASOS	PHOG	1996-2006	11.1	11.6	11.6	13.3	12.8	15.2	15.2	14.6	13.4	12.3	11.4	11.3	12.8
KAILUA-KONA INTL AP ASOS	PHKO	1996-2006	8.4	8.4	8.4	8.2	8.1	8.1	8.2	8.3	8.0	7.8	7.9	8.0	8.1
KANEOHE BAY MCAS	PHNG	1996-2006	7.4	8.4	8.4	9.4	8.1	9.3	9.7	8.7	8.2	8.0	7.7	7.8	8.4
KAPOLEI-KALAELOA AP ASOS	PHJR	1999-2006	8.6	7.8	8.4	8.6	7.9	8.2	9.0	8.8	7.8	7.5	7.4	7.6	8.1
LAHAINA-KAPALUA AP AWOS	PHJH	1996-2006	14.4	15.1	14.9	16.7	15.7	16.9	17.1	16.8	15.8	15.1	14.2	14.6	15.6
LANAI AIRPORT	PHNY	1996-2006	9.5	10.4	10.1	11.4	10.0	10.5	12.1	11.1	10.3	9.5	10.1	9.5	10.4
LIHUE AIRPORT ASOS	PHLI	1996-2006	12.0	12.5	12.5	14.4	12.8	14.2	14.8	13.6	13.0	12.7	12.8	12.5	13.1
MOLOKAI AIRPORT ASOS	PHMK	1996-2006	10.2	10.7	10.6	12.5	11.3	13.2	14.0	13.3	11.8	11.4	10.8	10.3	11.7
WAHIAWA-WHEELER ARMY AF	PHHI	1996-2006	8.9	9.2	9.3	9.9	9.4	10.1	10.0	9.8	9.3	8.1	7.6	8.3	9.1

IDAHO

AVERAGE WIND SPEED - MPH

STATION	ID	Years	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
BOISE AIRPORT ASOS	KBOI	1996-2006	6.7	8.1	9.0	8.8	8.1	8.3	7.4	7.4	7.3	7.2	7.0	7.4	7.7
BURLEY AIRPORT ASOS	KBYI	1996-2006	9.2	9.3	10.3	9.9	9.3	8.6	7.0	6.9	6.8	7.9	8.5	9.4	8.6
CALDWELL AIRPORT AWOS	KEUL	1997-2006	5.8	7.5	7.9	7.7	6.7	6.6	5.6	5.3	5.0	5.3	5.8	6.1	6.2
CHALLIS AIRPORT ASOS	KLLJ	1998-2006	1.9	2.8	5.0	6.1	6.2	6.1	5.5	4.8	4.0	3.6	2.8	2.2	4.2
COEUR D'ALENE AP AWOS	KCOE	1996-2006	7.8	7.5	8.3	7.9	7.6	7.2	6.7	6.6	6.7	6.8	7.5	7.7	7.3
HAILEY-SUN VLY AP AWOS	KSUN	1996-2006	4.1	4.6	5.9	6.7	7.6	7.7	8.1	7.9	7.5	6.4	4.5	3.9	6.2
IDAHO FALLS AP ASOS	KIDA	1996-2006	8.2	8.1	10.1	10.6	10.8	9.9	8.6	8.3	8.1	8.8	8.4	8.0	9.0
JEROME AIRPORT ASOS	KJER	1998-2006	11.3	12.5	11.7	11.2	10.6	10.2	7.6	7.4	8.4	9.5	10.2	10.7	10.1
LEWISTON AIRPORT ASOS	KLWS	1996-2006	6.2	6.0	6.3	6.0	5.8	5.8	5.7	5.5	4.8	4.7	5.3	6.1	5.7
LOWELL R.S. ASOS	KP69	1996-2006	1.5	1.6	1.7	1.9	1.8	1.9	1.9	1.8	1.6	1.1	1.4	1.7	1.7
MCCALL AIRPORT ASOS	KMYL	1997-2006	2.7	3.3	4.1	5.1	5.6	5.0	4.2	4.3	4.0	3.8	3.2	2.9	4.0
MOUNTAIN HOME AFB	KMUO	1996-2006	9.9	11.7	11.4	11.1	10.2	10.2	9.0	8.8	8.7	9.2	9.1	10.0	10.0
MULLAN PASS ASOS	KMLP	1996-2006	5.2	6.4	7.4	6.9	6.8	6.9	6.1	6.0	6.5	7.1	7.3	5.2	6.5
POCATELLO AIRPORT ASOS	KPIH	1996-2006	9.6	9.0	10.9	11.2	11.0	10.3	8.7	8.8	8.5	9.4	9.2	9.6	9.7
REXBURG AIRPORT ASOS	KRXE	1998-2006	5.6	6.2	8.8	9.7	9.7	8.6	7.5	7.3	6.9	7.4	7.0	5.9	7.5
SALMON AIRPORT AWOS	KSMN	1996-2006	1.8	2.2	4.2	4.8	4.7	4.4	4.0	3.8	3.1	2.9	2.5	2.1	3.3
SANDPOINT AIRPORT AWSO	KSZT	2003-2006	4.8	4.2	4.6	5.1	5.0	4.9	4.1	3.6	3.4	3.9	4.9	4.2	4.4
STANLEY ASOS	KSNT	1998-2006	2.2	2.8	3.8	3.9	4.1	4.2	4.1	3.9	3.3	2.9	2.6	2.5	3.3
TWIN FALLS AIRPORT ASOS	KTWF	1996-2006	10.0	10.9	11.9	11.8	11.3	11.0	9.9	9.9	10.2	10.9	10.0	10.4	10.7

MONTANA

AVERAGE WIND SPEED - MPH

STATION	ID	Years	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
BAKER AIRPORT ASOS	KBHK	1998-2006	10.4	10.5	12.2	12.5	12.7	11.7	10.7	10.8	10.0	10.3	10.5	10.7	11.1
BILLINGS-LOGAN AP ASOS	KBIL	1996-2006	12.8	12.2	11.0	10.5	10.4	10.0	9.3	9.2	9.6	10.3	12.0	13.0	10.9
BOZEMAN AIRPORT ASOS	KBZN	1996-2006	4.6	5.3	6.4	7.2	7.0	6.3	6.3	6.4	6.1	5.7	4.9	4.8	5.9
BUTTE AIRPORT ASOS	KBTM	1996-2006	4.7	5.0	6.8	7.3	7.7	7.3	6.9	6.6	6.2	6.2	5.2	4.9	6.2
CUT BANK AIRPORT ASOS	KCTB	1996-2006	14.6	12.8	13.3	12.8	13.4	12.3	11.2	10.2	11.4	13.0	13.6	14.6	12.8
DILLON AIRPORT ASOS	KDLN	1997-2006	10.2	9.7	10.3	10.0	9.6	8.4	8.0	8.0	8.7	9.0	9.3	9.2	9.2
GLASGOW AIRPORT ASOS	KGGW	1996-2006	9.3	9.3	11.7	12.4	12.6	11.4	10.7	11.0	10.5	10.3	9.3	9.4	10.6
GLENDIVE AIRPORT AWOS	KGDV	1996-2006	9.5	9.7	10.5	11.3	11.6	10.4	9.4	9.6	9.6	10.1	9.7	10.2	10.1
GREAT FALLS AP ASOS	KGTF	1996-2006	13.3	12.3	11.8	11.2	11.3	10.2	9.6	9.2	10.4	11.9	13.2	13.8	11.5
GREAT FALLS-MALSTROM AF	KGFA	1996-2006	12.3	9.9	11.9	10.7	10.3	9.7	9.1	8.8	9.9	10.4	13.2	13.2	10.9
HAVRE AIRPORT ASOS	KHVR	1996-2006	9.9	9.6	10.7	11.0	11.6	10.6	9.8	9.5	9.8	9.8	10.6	11.0	10.3
HELENA AIRPORT ASOS	KHLN	1996-2006	5.8	6.3	7.8	8.3	8.4	8.2	7.4	6.6	6.7	6.6	5.8	6.0	7.0
JORDAN AIRPORT ASOS	KJDN	1996-2006	7.3	7.9	9.3	10.0	10.5	9.7	8.4	8.4	8.2	8.2	7.9	8.1	8.6
KALISPELL AIRPORT ASOS	KGPI	1996-2006	4.1	3.8	6.0	6.7	6.6	5.7	5.2	5.0	4.6	4.2	4.0	3.2	4.9
LEWISTOWN AIRPORT ASOS	KLWT	1996-2006	10.6	9.5	10.2	9.8	9.9	9.0	7.9	8.0	8.5	9.2	10.2	10.7	9.5
LIVINGSTON AIRPORT ASOS	KLVM	1996-2006	19.8	17.4	16.2	14.0	13.1	11.9	11.0	11.2	12.7	14.6	18.4	20.4	15.2
MILES CITY AP ASOS	KMLS	1996-2006	8.8	9.4	10.6	11.2	11.3	10.5	9.9	9.7	9.7	9.7	9.3	9.3	9.9
MISSOULA AIRPORT ASOS	KMSO	1996-2006	3.2	3.7	5.4	6.1	6.0	6.1	5.7	5.2	4.3	3.9	3.5	3.7	4.7
SIDNEY AIRPORT AWOS	KSDY	1996-2006	8.9	9.0	9.5	10.2	10.4	9.0	7.7	7.9	8.2	8.8	8.7	9.4	9.0
WOLF POINT AIRPORT ASOS	KOLF	1998-2006	7.1	7.6	9.4	10.3	10.4	8.9	8.2	8.3	7.6	7.7	7.3	7.6	8.3

NEW MEXICO

AVERAGE WIND SPEED - MPH

STATION	ID	Years	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
ALAMOGORDO AIRPORT ASOS	KALM	1996-2006	5.1	6.3	7.1	7.9	7.1	6.9	6.1	5.3	5.2	5.2	5.0	5.0	6.0
ALAMOGORDO-HOLLOMAN AFB	KHMN	1996-2006	8.5	9.7	10.6	11.8	10.8	10.6	9.8	9.1	8.8	8.5	8.1	8.3	9.6
ALBUQUERQUE AP ASOS	KABQ	1996-2006	7.0	8.2	9.3	11.1	10.0	10.0	8.7	8.3	8.0	7.9	7.2	6.9	8.5
ALBUQUERQUE-DBLE EAGLE	KAEG	1999-2006	7.1	7.9	9.0	10.6	9.5	8.6	7.0	6.2	7.0	6.5	6.5	6.1	7.7
ARTESIA AIRPORT ASOS	KATS	1997-2006	7.8	9.1	10.1	10.9	10.2	9.9	7.8	6.9	7.6	7.8	7.6	7.4	8.5
CARLSBAD AIRPORT ASOS	KCNM	1996-2006	9.2	9.8	10.9	11.4	10.4	9.9	8.5	7.7	8.2	8.5	8.4	8.8	9.3
CLAYTON MUNI AP ASOS	KCAO	1996-2006	11.9	12.7	13.4	14.6	13.4	13.0	11.7	10.8	11.8	12.1	12.1	12.0	12.4
CLINES CORNERS	KCQC	1998-2006	16.2	16.1	15.7	16.9	14.6	13.5	10.6	10.1	11.8	13.3	15.0	16.0	14.1
CLOVIS AIRPORT AWOS	KCVN	1996-2006	12.3	12.3	13.4	13.8	12.4	11.9	9.7	8.9	9.7	10.9	11.6	12.2	11.6
CLOVIS-CANNON AFB	KCVS	1996-2006	12.5	12.6	13.6	13.8	12.2	12.5	10.7	10.0	10.2	11.3	11.7	12.4	12.0
DEMING AIRPORT ASOS	KDMN	1996-2006	8.7	9.7	10.9	12.0	10.6	10.1	8.9	8.1	8.4	8.2	8.5	8.1	9.3
FARMINGTON AIRPORT ASOS	KFMN	1996-2006	7.3	8.3	9.0	9.8	9.4	9.4	8.7	8.2	8.0	7.8	7.6	7.3	8.4
GALLUP AIRPORT ASOS	KGUP	1996-2006	5.7	6.9	7.8	10.0	9.0	8.8	6.9	6.0	6.5	6.1	5.6	5.3	7.0
GRANTS-MILAN AP ASOS	KGNT	1997-2006	7.8	8.8	9.6	10.9	10.0	9.8	8.1	7.2	7.9	8.4	8.0	7.6	8.7

HOBBS AIRPORT AWOS	KHOB	1996-2006	11.3	11.9	12.6	13.4	12.5	12.3	11.0	10.0	10.2	10.6	10.7	11.1	11.4
LAS CRUCES AIRPORT AWOS	KLRU	2000-2006	6.4	7.5	8.8	10.1	8.7	8.2	6.8	6.0	6.2	6.1	6.4	6.0	7.3
LAS VEGAS AIRPORT ASOS	KLVS	1996-2006	10.9	12.2	12.5	14.3	12.4	11.8	10.0	9.2	10.9	10.8	11.0	10.9	11.4
LOS ALAMOS AP AWOS	KLAM	2005-2006	3.9	5.7	7.5	8.1	7.1	7.3	5.3	4.8	5.7	5.1	4.4	3.2	5.4
RATON AIRPORT ASOS	KRTN	1998-2006	8.9	9.4	10.4	12.2	10.8	10.2	8.4	8.1	8.6	9.0	8.6	8.5	9.4
ROSWELL AIRPORT ASOS	KROW	1996-2006	7.4	8.9	9.9	11.1	10.3	10.2	8.8	7.9	8.3	8.0	7.5	7.3	8.8
RUIDOSO AIRPORT AWOS	KSRR	1996-2006	8.8	9.6	10.0	11.6	10.0	8.4	5.9	5.3	6.4	7.4	7.9	8.7	8.3
SANTA FE AIRPORT ASOS	KSAF	1996-2006	8.9	9.5	9.9	11.2	10.6	10.5	9.2	8.8	8.8	9.1	8.7	8.5	9.5
SILVER CITY AP AWOS	KSVC	1999-2006	8.1	8.7	9.9	10.8	10.2	9.9	8.5	7.2	6.9	7.6	7.9	7.7	8.5
TAOS AIRPORT AWOS	KSKX	1996-2006	5.8	6.5	7.7	9.1	8.6	8.5	7.1	6.6	6.7	6.6	6.0	5.7	7.0
TRUTH OR CONSEQ AP ASOS	KTCS	1996-2006	7.4	8.7	9.9	11.1	10.4	9.8	8.1	7.4	7.7	8.0	7.7	7.3	8.6
TUCUMCARI AIRPORT ASOS	KTCC	1999-2006	10.0	11.2	11.9	13.6	11.9	11.6	9.9	9.3	10.0	10.0	10.4	10.2	10.8

NEVADA

AVERAGE WIND SPEED - MPH

STATION	ID	Years	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
DESERT ROCK AP-MERCURY	KDRA	1996-2006	8.0	8.8	9.2	10.7	10.5	10.5	9.6	9.1	8.8	8.2	7.7	8.4	9.1
ELKO AIRPORT ASOS	KEKO	1996-2006	4.6	5.3	5.9	6.7	6.4	6.3	5.7	5.3	5.0	4.6	4.6	4.8	5.4
ELY AIRPORT ASOS	KELY	1996-2006	9.0	9.0	9.6	10.3	9.8	10.2	9.8	9.9	9.6	9.5	8.8	9.2	9.5
EUREKA AIRPORT ASOS	KP68	1996-2006	5.4	6.2	7.7	8.3	7.6	8.0	7.3	7.6	7.1	6.5	5.6	5.3	6.8
FALLON NAS	KNFL	1996-2006	5.8	7.0	7.9	8.6	8.4	8.1	7.4	6.8	6.6	5.7	5.6	5.8	6.9
LAS VEGAS INTL AP ASOS	KLAS	1996-2006	6.6	7.5	8.6	10.3	10.1	10.1	8.9	8.4	7.9	7.1	6.3	6.5	8.1
LAS VEGAS-NELLIS AFB	KLSV	1996-2006	8.6	9.8	10.3	12.4	11.6	11.8	10.2	9.9	9.9	9.0	8.0	8.5	10.1
LOVELOCK AIRPORT ASOS	KLOL	1996-2006	4.8	6.4	7.2	8.5	8.7	8.8	7.7	6.9	6.3	5.7	5.0	4.7	6.7
NORTH LAS VEGAS AP ASOS	KVGT	2000-2006	6.8	7.3	8.4	10.2	9.2	9.0	7.9	7.7	7.9	6.9	6.7	6.5	7.8
RENO INTL AIRPORT ASOS	KRNO	1996-2006	4.4	5.6	6.9	8.1	8.2	8.0	7.1	6.2	5.3	4.6	4.8	5.1	6.1
TONOPAH AIRPORT ASOS	KTPH	1996-2006	8.6	9.8	10.8	11.8	10.8	10.7	9.2	9.3	9.4	9.4	8.7	8.8	9.8
WINNEMUCCA AIRPORT ASOS	KWMC	1996-2006	7.1	7.9	8.0	8.3	8.2	8.4	7.9	7.6	6.9	6.7	6.7	7.2	7.6

OREGON

AVERAGE WIND SPEED - MPH

STATION	ID	Years	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
ASTORIA AIRPORT ASOS	KAST	1996-2006	8.5	8.0	8.1	7.6	7.6	7.7	8.1	7.3	6.7	6.7	7.7	8.7	7.7
AURORA AIRPORT ASOS	KUAO	1997-2006	5.5	5.6	5.5	5.0	4.8	5.0	4.6	4.2	4.0	4.3	4.9	5.2	4.9
BAKER CITY AP ASOS	KBKE	1996-2006	6.6	7.4	8.1	9.0	7.9	7.8	6.6	6.4	5.8	6.2	6.6	6.9	7.1
BROOKINGS AIRPORT ASOS	KBOK	2005-2006	4.7	2.2	5.6	3.1	2.1	1.8	1.1	1.6	1.7	1.8	3.3	4.5	2.7
BURNS AIRPORT ASOS	KBNO	1996-2006	5.0	6.1	7.5	8.6	8.1	8.0	7.3	7.0	6.5	6.2	5.6	5.2	6.7
CORVALLIS AIRPORT AWOS	KCVO	1996-2006	5.5	5.3	6.1	6.0	6.0	6.8	8.3	7.8	6.2	5.1	5.0	5.5	6.1
EUGENE AIRPORT ASOS	KEUG	1996-2006	6.9	7.0	7.3	6.9	6.4	6.8	7.3	7.0	6.6	6.3	6.4	7.0	6.8
HERMISTON AIRPORT ASOS	KHRI	1999-2006	5.8	6.4	8.6	8.5	9.3	9.8	9.2	8.4	7.0	6.7	6.0	5.4	7.6
KLAMATH FALLS AP ASOS	KLMT	1996-2006	6.0	7.5	8.0	7.8	7.6	7.1	5.5	5.5	5.2	5.2	5.9	6.1	6.4
LA GRANDE AIRPORT AWOS	KLGD	1996-2006	11.2	10.1	8.4	8.1	6.9	7.0	6.2	6.1	5.7	6.7	8.8	10.9	8.0
LAKEVIEW AIRPORT AWOS	KLKV	1996-2006	7.2	7.7	8.2	8.8	8.3	8.1	7.2	7.4	7.3	7.5	7.3	7.8	7.7
MCMINNVILLE AP ASOS	KMMV	1997-2006	6.5	6.8	6.6	6.0	5.8	6.1	6.1	5.8	5.2	5.3	6.2	6.4	6.1
MEACHAM ASOS	KMEH	1996-2006	1.2	1.3	1.3	1.2	1.2	1.0	1.0	1.1	0.9	0.9	1.0	1.3	1.1
MEDFORD AIRPORT ASOS	KMFR	1996-2006	3.1	4.1	4.3	4.5	5.1	5.6	5.2	4.5	3.5	2.8	3.1	3.3	4.1
NEWPORT AIRPORT AWOS	KONP	1996-2006	11.0	9.5	9.6	8.8	7.8	8.0	8.1	7.4	6.5	7.5	9.8	11.2	8.8
NORTH BEND AP AWOS	KOTH	1996-2006	8.3	8.0	8.8	8.9	9.1	10.2	11.2	9.9	8.3	7.3	7.9	8.7	8.9
ONTARIO AIRPORT ASOS	KONO	1997-2006	4.0	5.7	6.8	8.1	7.1	7.5	6.5	5.6	5.2	5.3	4.7	4.6	5.9
PENDLETON AIRPORT ASOS	KPDT	1996-2006	7.5	8.1	9.7	9.2	9.7	10.0	9.5	9.1	8.6	8.2	7.5	7.4	8.7
PORTLAND INTL AP ASOS	KPDX	1996-2006	9.3	8.8	7.5	6.8	6.7	7.0	7.5	7.1	6.4	6.4	7.9	9.6	7.6
PORTLAND-HILLSBORO AP	KHIO	1996-2006	4.7	5.2	5.3	5.1	4.6	4.8	5.1	4.7	4.1	3.9	4.5	4.9	4.7
PORTLAND-TROUTDALE AP	KTTD	1996-2006	12.8	11.6	7.5	6.1	5.1	4.9	4.6	4.2	4.6	6.0	10.4	13.6	7.8
REDMOND AIRPORT ASOS	KRDM	1996-2006	6.0	6.2	7.0	6.9	7.1	7.4	6.7	6.4	6.0	5.9	6.0	5.9	6.4
ROME AIRPORT	KREO	1998-2006	6.8	7.5	8.8	8.8	8.5	8.6	8.2	7.9	7.2	7.1	7.4	7.3	7.8
ROSEBURG AIRPORT ASOS	KRBG	1997-2006	2.2	2.6	3.0	3.4	3.9	5.0	5.2	4.4	3.3	2.4	2.2	2.3	3.3
SALEM AIRPORT ASOS	KSLE	1996-2006	7.3	6.7	7.3	6.5	6.2	6.5	6.3	6.0	5.3	5.7	6.6	7.2	6.5
SCAPPOOSE AIRPORT ASOS	KSPB	1998-2006	3.4	3.6	4.2	4.7	4.5	5.4	6.4	5.9	4.6	3.2	3.1	3.5	4.3
SEXTON SUMMIT ASOS	KSXT	1996-2006	12.1	11.4	9.9	9.3	8.7	9.3	9.6	9.2	8.9	9.7	11.6	12.8	10.3
THE DALLES AIPORT ASOS	KDLS	1996-2006	4.3	5.2	8.1	9.7	11.3	13.0	13.3	11.6	8.8	6.5	4.1	4.7	8.3

UTAH

AVERAGE WIND SPEED - MPH

STATION	ID	Years	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann

BRYCE CANYON AP ASOS	KBCE	2000-2006	8.0	8.5	9.0	10.4	9.6	9.8	8.2	8.0	8.7	8.2	7.9	7.5	8.6
CEDAR CITY AIRPORT ASOS	KCDC	1996-2006	6.1	6.5	7.3	8.7	8.3	8.6	7.5	7.4	7.0	6.4	5.9	6.1	7.1
LOGAN AIRPORT ASOS	KLGU	1998-2006	2.9	3.2	4.8	6.3	5.6	5.6	5.3	5.2	4.3	4.0	3.5	3.2	4.4
MILFORD AIRPORT ASOS	KMLF	1996-2006	9.9	9.7	11.0	12.2	11.5	12.1	11.4	11.1	10.1	10.0	9.5	9.9	10.7
MOAB-CNYNLNDS AP ASOS	KCNY	1998-2006	4.0	5.2	6.9	9.2	8.9	8.7	7.2	6.8	6.3	5.4	4.4	3.7	6.3
OGDEN-HILL AFB	KHIF	1996-2006	9.7	10.3	10.6	10.8	10.1	10.8	11.2	10.9	10.8	10.4	9.9	10.1	10.5
OGDEN-HINKLEY AP ASOS	KOGD	1996-2006	5.6	6.2	7.7	8.6	7.8	8.1	7.6	7.7	7.3	7.1	6.1	6.1	7.1
PRICE AIRPORT ASOS	KPUC	1996-2006	5.1	5.8	7.9	8.5	8.4	8.2	7.0	6.6	6.9	6.7	5.8	5.2	6.8
PROVO AIRPORT AWOS	KPVU	1996-2006	4.9	6.0	7.2	7.9	7.4	7.3	6.4	6.6	6.2	5.9	5.2	5.0	6.3
SALT LAKE CITY AP ASOS	KSLC	1996-2006	6.9	7.6	8.9	9.8	9.2	9.6	9.5	9.8	8.9	8.2	7.5	7.5	8.6
ST GEORGE AIRPORT AWOS	KSGU	1996-2006	3.4	4.6	5.8	7.7	8.3	8.5	7.8	7.3	6.2	4.7	3.4	3.2	5.9
VERNAL AIRPORT ASOS	KVEL	1998-2006	2.9	3.9	6.0	7.6	7.3	7.0	5.8	5.7	5.4	4.9	4.0	3.1	5.3
WENDOVER AIRPORT AWOS	KENV	1996-2006	4.4	5.8	7.3	9.0	8.3	8.6	8.0	7.6	6.6	5.8	4.8	4.6	6.7

WASHINGTON

AVERAGE WIND SPEED - MPH

STATION	ID	Years	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
ARLINGTON AIRPORT AWOS	KAWO	1996-2006	5.6	4.9	6.2	5.2	4.8	4.5	4.5	4.3	3.6	4.1	5.2	5.3	4.9
BELLINGHAM AP ASOS	KBLI	1996-2006	9.0	8.0	8.9	7.4	7.4	7.8	8.0	7.4	5.8	6.4	8.0	8.7	7.7
BREMERTON AIRPORT AWOS	KPWT	1996-2006	5.9	5.4	6.3	5.7	5.7	5.5	5.0	4.6	4.7	5.1	5.0	5.2	5.3
BURLINGTON-MT VERNON AP	KBVS	2003-2006	7.0	6.1	7.2	6.1	5.1	5.2	5.1	4.7	4.5	5.1	6.3	6.3	5.7
DEER PARK AIRPORT	KDEW	1999-2006	5.3	5.4	6.6	6.8	7.0	6.6	6.0	5.6	5.1	5.2	5.1	4.9	5.8
ELLENSBURG AIRPORT ASOS	KELN	1998-2006	4.3	5.4	9.7	11.4	12.9	15.0	15.4	13.5	10.5	8.0	4.9	4.2	9.5
EPHRATA AIRPORT ASOS	KEPH	1996-2006	6.9	7.9	8.8	9.1	9.5	10.0	9.7	8.8	8.2	7.6	6.9	6.6	8.3
EVERETT-PAINE FLD ASOS	KPAE	1996-2006	9.3	8.2	9.2	8.1	7.6	7.3	7.1	6.9	6.3	7.3	8.9	9.0	8.0
FORT LEWIS-GRAY AAF	KGRF	1996-2006	6.4	6.5	7.5	6.7	6.6	6.5	6.1	5.8	5.6	6.0	6.0	6.6	6.4
FRIDAY HARBOR AP ASOS	KFHR	1997-2006	7.2	7.2	7.3	5.8	5.2	5.3	4.8	4.1	3.6	4.9	6.7	7.9	5.8
HANFORD	KHMS	1996-2006	7.5	8.2	9.4	9.2	9.9	10.3	9.9	9.2	8.4	8.0	7.8	7.2	8.8
HOQUIAM AIRPORT ASOS	KHQM	1996-2006	11.0	10.3	10.3	9.1	9.0	8.9	8.4	7.9	7.5	8.5	10.0	11.1	9.3
KELSO-LONGVIEW AP ASOS	KKLS	1996-2006	5.9	5.0	5.4	4.8	4.6	5.2	5.8	5.4	4.4	4.1	5.0	5.8	5.1
MOSES LAKE AIRPORT ASOS	KMWH	1996-2006	6.4	6.9	8.1	8.1	8.5	8.6	7.9	7.3	6.9	7.0	6.5	5.9	7.3
OLYMPIA AIRPORT ASOS	KOLM	1996-2006	6.0	5.5	6.6	5.8	5.9	5.9	5.3	4.9	4.6	5.3	5.7	5.9	5.6
OMAK AIRPORT ASOS	KOMK	1998-2006	5.0	5.9	7.3	7.9	7.8	8.0	8.4	8.3	8.0	6.9	5.2	4.2	6.9
ORCAS ISLAND AP AWOS	KORS	2004-2006	7.4	5.6	5.8	5.8	5.6	5.6	6.0	5.8	4.3	5.0	6.5	5.9	5.8
PASCO-TRI CITIES ASOS	KPSC	1996-2006	6.7	6.4	7.8	7.5	8.0	8.0	6.9	6.5	5.6	6.0	6.3	6.1	6.8
PORT ANGELES AP ASOS	KCLM	1996-2006	4.2	4.7	5.2	5.9	6.4	6.6	6.6	5.6	4.6	4.2	4.2	4.6	5.2
PULLMAN-MOSCOW AP ASOS	KPUW	1996-2006	9.1	8.5	8.8	7.8	7.2	6.1	4.7	5.1	5.5	6.6	8.6	9.3	7.3
QUILLAYUTE AIRPORT ASOS	KUIL	1996-2006	6.5	6.2	6.5	5.8	5.2	4.8	4.6	4.2	3.9	4.8	5.8	6.3	5.4
RENTON AIRPORT ASOS	KRNT	1996-2006	6.5	6.7	7.5	7.3	7.3	7.4	7.6	7.2	6.5	5.9	5.8	6.1	6.8
SEATTLE-BOEING FIELD	KBFI	1996-2006	6.4	5.9	7.1	6.5	6.5	6.5	6.1	5.8	5.4	5.7	6.1	6.3	6.2
SEATTLE-TACOMA AP ASOS	KSEA	1996-2006	8.3	8.2	8.5	7.4	7.3	7.2	7.0	6.4	6.5	6.9	7.5	8.3	7.5
SHELTON AIRPORT ASOS	KSHN	1996-2006	4.4	4.8	6.2	6.4	7.5	8.0	8.1	7.3	5.3	4.9	4.4	4.5	6.0
SKYKOMISH AP, WA (S88).	WIN	1992-1994	5.5	5.1	5.4	6.4	5.8	5.3	4.2	4.3	4.2	4.3	4.1	4.8	4.9
SPOKANE INTL AP ASOS	KGEG	1996-2006	8.7	8.2	10.2	9.5	9.5	9.3	8.8	8.2	8.0	8.3	8.4	8.1	8.7
SPOKANE-FAIRCHILD AFB	KSKA	1996-2006	10.1	9.6	10.7	10.2	9.7	9.2	8.5	8.5	8.3	8.9	9.6	9.6	9.4
SPOKANE-FELTS FLD ASOS	KSFF	1996-2006	4.5	4.6	6.5	6.4	6.5	6.4	6.3	5.8	5.1	4.9	4.7	4.3	5.5
STAMPEDE PASS ASOS	KSMP	1996-2006	7.0	7.7	7.5	7.3	7.6	8.1	8.3	7.8	7.5	7.5	7.3	7.2	7.6
TACOMA NARROWS AP ASOS	KTIW	1999-2006	7.0	6.7	7.6	6.8	6.8	6.5	6.2	5.5	5.4	6.2	6.5	6.4	6.5
TACOMA-MCCHORD AFB	KTCM	1996-2006	7.4	7.3	8.6	7.7	7.6	7.5	7.0	6.5	6.3	6.8	7.1	7.2	7.2
TOLEDO AIRPORT	KTDO	1996-2006	3.4	4.3	4.9	4.9	4.5	4.6	4.7	4.3	3.9	3.6	3.5	3.5	4.1
VANCOUVER AIRPORT ASOS	KVUO	1996-2006	5.6	5.5	5.0	4.7	4.7	5.2	5.5	5.1	4.2	4.0	4.8	5.6	5.0
WALLA WALLA AP ASOS	KALW	1996-2006	8.0	8.0	9.8	9.1	9.1	9.3	9.1	8.8	8.1	7.8	7.7	7.6	8.5
WENATCHEE-PANGBORN AP	KEAT	1996-2006	3.3	4.2	7.1	8.4	9.3	10.3	9.8	9.2	7.8	6.0	4.0	3.3	6.9
WHIDBEY ISLAND NAS	KNUW	1996-2006	10.7	9.5	10.9	9.0	7.9	7.4	6.9	6.3	5.9	8.3	10.2	11.0	8.6
YAKIMA AIRPORT ASOS	KYKM	1996-****	4.0	5.5	6.8	7.3	7.5	7.9	7.2	6.7	6.3	5.6	4.7	3.8	6.0

WYOMING

AVERAGE WIND SPEED - MPH

STATION	ID	Years	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
BIG PINEY AIRPORT ASOS	KBPI	1996-2006	5.3	5.0	6.8	8.6	9.0	8.9	7.9	7.4	6.9	6.8	5.5	5.2	6.9
BUFFALO-JOHNSON CTY AP	KBYG	1998-2006	8.4	9.4	10.2	11.8	11.2	10.0	9.5	9.3	9.4	9.7	9.2	8.9	9.7
CASPER AIRPORT ASOS	KCPR	1996-2006	14.4	13.5	12.5	11.7	10.9	10.8	9.6	9.9	10.1	11.2	13.6	15.3	12.0
CHEYENNE AIRPORT ASOS	KCYS	1996-2006	14.0	13.6	13.7	13.3	12.2	11.3	10.2	10.3	10.5	11.7	13.1	14.4	12.4
CODY AIRPORT AWOS	KCOD	1996-2006	7.8	7.6	8.2	8.2	7.9	7.2	6.7	6.5	6.7	7.1	7.7	7.5	7.4
DOUGLAS AIRPORT ASOS	KDGW	1998-2006	10.0	10.6	11.1	12.2	10.9	10.7	9.5	9.8	8.6	9.4	10.2	10.5	10.3
EVANSTON AIRPORT ASOS	KEVW	1996-2006	10.1	9.1	10.3	11.4	10.8	10.6	9.5	9.3	9.6	10.0	9.1	9.9	10.0
GILLETTE AIRPORT ASOS	KGCC	1996-2006	11.0	11.4	11.2	11.5	11.1	10.3	9.4	10.0	9.4	10.3	10.9	11.8	10.7

GREYBULL AIRPORT ASOS	KGEY	1998-2006	4.1	5.9	7.8	9.5	9.2	8.6	7.7	7.2	7.1	6.6	5.3	4.9		6.9
JACKSON HOLE AP AWOS	KJAC	1996-2006	7.7	7.8	8.6	8.1	7.8	7.2	6.5	6.4	6.3	6.8	6.4	6.6		7.2
LAKE YELLOWSTONE ASOS	KP60	1996-2006	1.7	1.8	2.9	2.6	2.8	3.2	2.9	3.2	3.1	3.0	2.7	2.3		2.7
LANDER AIRPORT ASOS	KLND	1996-2006	5.0	5.2	6.8	7.7	8.0	8.3	7.8	7.5	6.9	5.8	5.1	5.0		6.5
LARAMIE AIRPORT ASOS	KLAR	1996-2006	13.8	13.1	13.6	13.7	12.9	12.4	10.2	10.5	10.7	12.1	12.4	13.4		12.4
PINEDALE AIRPORT	KPNA	2004-2006	5.0	4.9	6.9	8.1	7.3	7.9	7.0	6.1	6.8	6.6	6.0	5.7		6.5
RAWLINS AIRPORT ASOS	KRWL	1996-2006	15.6	14.0	14.3	13.4	13.0	12.1	10.0	10.1	10.7	12.6	13.4	15.0		12.9
RIVERTON AIRPORT ASOS	KRIW	1996-2006	7.3	7.6	9.3	10.1	10.1	9.9	9.7	9.1	8.7	8.3	7.2	7.0		8.6
ROCK SPRINGS AP ASOS	KRKS	1996-2006	12.6	11.1	12.3	12.5	11.8	11.2	9.3	9.2	9.7	11.1	10.6	11.9		11.1
SHERIDAN AIRPORT ASOS	KSHR	1996-2006	6.3	7.2	7.8	9.1	8.6	7.5	6.6	6.2	6.3	6.7	6.5	6.8		7.1
TORRINGTON AIRPORT ASOS	KTOR	1999-2006	10.1	10.6	11.0	11.8	10.9	10.1	9.0	9.2	8.5	8.9	9.6	10.2		10.0
WORLAND AIRPORT ASOS	KWRL	1996-2006	4.0	5.2	6.7	7.9	7.2	6.5	5.8	5.7	5.5	5.3	4.8	4.4		5.7

Prevailing wind direction is based on the hourly data from 1992-2002 and is defined as the direction with the highest percent of frequency. Many of these locations have very close secondary maximum which can lead to noticeable differences month to month.

Click on a State: Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming

All directions are where the wind blows FROM.

ALASKA

PREVAILING WIND DIRECTION

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
AMBLER AIRPORT, AK. (PAFM)	NNE	NNE	NNE	NNE	NNE	W	NNE	NNE	NNE	NNE	NNE	NNE	NNE
ANAKTUVUK PASS AP, AK (PAKP)	NE	S	NNE	NE	NE	NE	NE	NE	NE	NE	S	NE	NE
ANCHORAGE INT'L AP, AK (PANC)	N	N	N	S	S	S	S	S	S	N	N	N	N
ANIAK, AK. (PANI)	N	ESE	N	ESE	W	SE	SE	SE	ESE	ESE	ESE	N	ESE
ANNETTE AP, AK (PANT). WIND	ESE	ESE	ESE	SE	SE	SE	SE	SE	SE	ESE	ESE	ESE	ESE
ANVIK AP, AK (PANV). WIND R	NE	NE	NNE	NNE	W	W	W	W	W	NNE	NE	NE	NE
ARCTIC VILLAGE AP, AK (PARC)	NE	E	ENE	E	E	NE	WSW	WSW	NE	E	E	E	E
BARROW, AK. (PABR)	ENE	E	E	E	E	E	E	E	E	E	E	ENE	E
BARTER ISLAND, AK. (PABA)	W	E	W	E	E	E	E	E	E	E	E	W	E
BETHEL AIRPORT, AK. (PABE)	NNE	NE	NNE	N	S	S	S	S	S	N	NNE	NNE	NNE
BETTLES AP, AK. (PABT)	N	NNW	N	N	N	SW	S	S	N	N	N	N	N
BIRCHWOOD, AK. (PABV)	S	S	SSW	W	W	W	W	W	SSW	SSW	S	S	SSW
BUCKLAND AP, AK. (PABL)	WNW	E	E	W	WNW	WNW	SE	W	SE	SE	SE	E	SE
CANTWELL AP, AK (PATW). WIN							Incomplete Data						
CAPE LISBURNE AP, AK (PALU).	E	E	E	E	E	E	SSW	SSW	E	ENE	E	E	E
CAPE NEWENHAM, AK (PAEH). W	ESE	ESE	ESE	N	S	S	S	S	N	N	ESE	N	N
CAPE ROMANZOF, AK. (PACZ)	NE	NNE	NE	NNE	S	NNE	SSW	N	N	NNE	NE	N	NNE
CHIGNIK AP, AK (PAJC). WIND	W	W	W	W	W	W	W	W	W	W	W	W	W
COLD BAY, AK. (PACD)	SE	SE	SE	SE	SE	SE	SE	W	W	N	SE	N	SE
CORDOVA, AK. (PACV)	E	E	E	E	E	E	ENE	ENE	E	E	E	E	E
DEADHORSE AP, AK (PASC). WI	WSW	ENE	ENE	E	E	E	ENE	E	E	E	E	WSW	E
DEERING AIRPORT, AK. (PADE)	W	E	W	W	W	W	W	SSW	SW	SW	E	W	W
DELTA JCT/FT GREELEY,(PABI)	ESE	ESE	E	S	W	W	W	W	E	E	ESE	ESE	ESE
DILLINGHAM AIRPORT, AK. (PADL	N	N	N	N	N	S	S	S	N	N	N	N	N
EAGLE AP, AK (PAEG). WIND R	ESE	ESE	SE	SE	NE	N	W	ESE	SE	ESE	ESE	ESE	ESE
EGEGIK AP, AK (PAII). WIND	N	ESE	ESE	ESE	W	ESE	SE	W	W	N	N	N	ESE
EIELSON AFB-FAIRBANKS,AK-PAEI	S	S	NNW	W	W	W	W	W	S	S	S	S	S
ELMENDORF AFB-ANCH, AK-PAED	NE	N	N	N	W	W	W	W	N	N	NNE	NE	N
EMMONAK, AK (PAEM). WIND RO	ENE	ENE	ENE	N	N	N	S	S	N	N	ESE	N	N
EUREKA-SKELTON AP, AK (PAZK)	NE	NE	NE	W	W	WSW	WSW	W	W	NE	NE	NE	W
FAIRBANKS AP, AK. (PAFA)	NNE	NE	NNE	N	N	W	W	N	N	N	N	NE	N
FAIRBANKS-WAINWRIGHT AP,(PAFB	E	E	ENE	ENE	W	W	WSW	E	E	ENE	E	E	E
GALENA AIRPORT, AK. (PAGA)	N	E	N	N	N	WSW	SW	SW	E	N	E	E	N
GAMBELL, AK. (PAGM)	NNE	NNE	NNE	NNE	NNE	NNE	SSW	SSW	N	N	N	NE	NNE
GOLOVIN AP, AK. (PAGL)	NW	E	NW	NW	NW	S	S	S	NNW	N	N	NW	NW
GULKANA AIRPORT, AK. (PAGK)	N	N	N	S	S	S	S	S	S	N	N	N	S
GUSTAVUS AP, AK. (PAGS)	SE	SE	SE	SE	SE	SW	SW	SE	SE	SE	SE	SE	SE
HAINES AIRPORT, AK. (PAHN)	WNW	WNW	WNW	E	E	E	E	E	E	E	WNW	WNW	WNW
HEALY RIVER AP, AK (PAHV).	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE
HOMER AP, AK. (PAHO)	NE	NE	ENE	WSW	WSW	WSW	WSW	WSW	NE	NE	NE	NE	NE
HOONAH SEAPLANE, AK (PAOH)							Incomplete Data						
HOOPER BAY AP, AK. (PAHP)	E	E	E	N	N	N	N	W	N	E	E	E	E
HUSLIA AP, AK (PAHS). WIND	E	E	E	ENE	ENE	WNW	W	W	ENE	ENE	E	E	E
HYDABURG SEAPLANE, AK (PAHY)	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE
ILIAMNA AP, AK (PAIL). WIND	N	E	E	E	E	E	E	E	E	N	N	N	E
JUNEAU INT'L AP, AK (PAJN).	E	E	E	ESE	ESE	E	E	E	E	E	E	E	E
KAKE AIRPORT, AK. (PAFE)	ESE	ESE	ESE	ESE	ESE	W	ESE	ESE	ESE	ESE	E	ESE	ESE
KALTAG AP, AK (PAKV). WIND	NE	NE	NE	NE	SW	SW	SW	SW	SW	NE	NE	NE	NE
KENAI AP, AK (PAEN). WIND R	NNE	NNE	NNE	N	SSW	SSW	SSW	S	NNE	NNE	NNE	NNE	NNE
KETCHIKAN AP, AK (PAKT). WI	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SSE	SE	SE
KING SALMON AP, AK (PAKN).	N	E	E	E	S	S	S	S	N	N	N	N	N
KIVALINA AP, AK (PAVL). WIN	NNE	NNE	NNE	N	N	W	W	N	N	NNE	NNE	NNE	NNE
KLAWOCK AP, AK (PAKW). WIND	NE	NE	NE	S	SW	SW	SW	SW	SSW	S	NE	NE	SW
KODIAK AP, AK (PADQ). WIND	NW	NW	NW	NW	NW	E	E	NW	WNW	NW	NW	NW	NW
KOTZEBUE AP, AK (PAOT). WIN	E	E	E	E	W	W	W	W	E	E	E	E	E
KOYUK AP, AK (PAKK). WIND R	N	N	N	N	N	SSW	SSW	SW	N	N	N	N	N

LAKE HOOD SEAPLANE BASE, ANC	N	N	N	S	S	S	S	S	S	N	N	N	N
MCGRATH AP, AK (PAMC). WIND	W	WNW	N	N	W	W	S	S	W	N	N	N	N
MCKINLEY PARK AP, AK (PAIN).	N	S	N	S	N	N	S	N	N	N	N	N	N
MEKORYUK AP, AK (PAMY). WIN	NE	ESE	ESE	W	NNW	WNW	W	W	NNW	N	SE	N	N
MERRILL FIELD, ANCHORAGE,PAMR	NNE	N	N	N	W	WNW	WNW	WNW	N	N	NNE	NNE	N
METLAKATLA SEAPLANE BASE, AK	E	E	E	E	SSE	WSW	S	S	S	SSE	E	E	SSE
MIDDLETON ISLAND AP, AK (PAMD	ESE	ESE	E	E	E	W	E	W	E	E	E	E	E
MINCHUMINA AP, AK (PAMH). W	ENE	ENE	ENE	E	WSW	WSW	WSW	WSW	WSW	ENE	ENE	ENE	ENE
NABESNA-DEVILS MTN LODGE(PABN						Incomplete Data							
NENANA AP, AK (PANN). WIND	E	E	ENE	E	E	W	SW	E	E	ENE	ENE	ENE	E
NOATAK AP, AK (PAWN). WIND	N	NNE	NNE	NNE	N	S	S	N	N	N	N	NNE	N
NOME AP, AK (PAOM). WIND RO	E	E	E	E	E	WSW	WSW	WSW	N	N	E	N	E
NORTHWAY AP, AK (PAOR). WIN	WNW	E	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW
NUIQSUT AP, AK (PAQT). WIND	W	ENE	ENE	ENE	E	E	ENE	W	ENE	E	ENE	NE	ENE
PALMER MUNICIPAL AP, AK.(PAAQ	N	N	N	SE	SE	SE	SE	N	N	N	N	N	N
PETERSBURG AP, AK (PAPG). W	WSW	ESE	WSW	E	E	ENE	ENE	E	E	ESE	WSW	WSW	E
POINT HOPE AP, AK (PAPO). W	N	N	N	N	N	N	S	N	N	E	NNE	N	N
PORTAGE AP, AK (PATO). WIND	WNW	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	SE	SE	WNW	ESE
RED DOG AP, AK (PARD). WIND						Incomplete Data							
SAND POINT AP, AK (PASD). W	N	SSE	N	N	N	S	S	S	N	N	NNW	N	N
SAVOONGA AP, AK (PASA). WIN	E	E	E	E	E	E	W	W	N	N	E	NE	E
SELAWIK AP, AK (PASK). WIND	ENE	ENE	ENE	W	W	W	W	W	ENE	ENE	ENE	ENE	ENE
SELDOVIA AP, AK (PASO). WIN	N	N	N	S	S	S	S	S	S	S	S	S	S
SEWARD AP, AK (PAWD). WIND	N	N	N	N	S	S	S	N	N	N	N	N	N
SHISHMAREF AP, AK (PASH). W	N	N	E	E	NNW	W	N	N	N	E	E	E	N
SITKA AP, AK (PASI). WIND R	ESE	ESE	ESE	ESE	ESE	SW	SW	ESE	E	ESE	ESE	E	ESE
SKAGWAY AIRPORT, AK. (PAGY)	NE	NE	NNE	SSW	SSW	SSW	SSW	SSW	SSW	SSW	NNE	NE	SSW
SLANA, AK (PADT). WIND ROSE						Incomplete Data							
SLEETMUTE AP, AK (PASL). WI	NW	NW	NW	ESE	W	SE	ESE	ESE	ESE	WNW	WNW	NW	NW
SOLDOTNA AP, AK (PASX). WIN	E	E	E	E	W	W	W	W	E	E	E	E	E
ST. GEORGE ISLAND, AK. (PAPB)	NNE	E	E	NNE	E	NE	W	S	W	NNW	NNW	E	NE
ST. MARY'S AP, AK (PASM). W	E	E	E	E	N	S	S	S	E	E	E	E	E
ST. PAUL ISLAND, AK. (PASN)	N	N	E	N	N	N	W	SSW	WSW	N	N	N	N
TALKEETNA AP, AK (PATK). WI	NNE	N	NNE	N	N	S	S	S	N	N	N	N	N
TANANA AP, AK (PATA). WIND	E	E	E	E	ESE	WSW	W	W	E	E	E	E	E
TIN CITY AP, AK (PATC). WIN	N	N	NNE	NNE	NNE	NNE	SSW	NNE	NNE	NNE	NNE	NNE	NNE
TOGIAK AP, AK (PATG). WIND	N	N	N	N	N	SSW	S	S	N	N	N	N	N
UNALAKLEET AP, AK (PAUN). W	E	E	E	E	E	NNW	W	E	E	E	E	E	E
UNALASKA AP, AK (PADU). WIN	SE	SE	SE	N	SE	E	E	E	SSW	NNW	NNW	SE	SE
UTOPIA CREEK, AK (PAIM)	ENE	ENE	ENE	E	E	NW	NW	W	ENE	ENE	ENE	ENE	ENE
VALDEZ AP, AK (PAVD). WIND	E	E	E	W	W	W	E	E	E	E	E	E	E
VALDEZ WSO, AK (PAVW). WIND	ENE	ENE	ENE	ENE	WSW	WSW	WSW	WSW	WSW	ENE	ENE	ENE	ENE
WAINWRIGHT AP, AK (PAWI). W	E	E	E	E	E	E	W	E	E	E	E	E	E
WASILLA AP, AK (PAWS). WIN	ENE	ENE	ENE	E	E	S	ENE	ENE	ENE	ENE	ENE	ENE	ENE
WHITTIER AP, AK (PAWR). WIN	ENE	S	S	S	S	S	S	S	ENE	SSW	S	SSW	S
WRANGELL AP, AK (PAWG). WIN	E	ESE	E	SE	SE	W	W	SE	ESE	ESE	E	E	E
YAKUTAT AP, AK (PAYA). WIND	E	E	E	E	SE	E	E	E	E	E	E	E	E

<u>ARIZONA</u>

PREVAILING WIND DIRECTION

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
CASA GRANDE AP, AZ (KCGZ).	N	W	W	W	W	W	W	E	E	ENE	N	N	W
DOUGLAS AIRPORT, AZ (KDUG).	E	N	N	W	WSW	W	S	E	E	E	E	N	N
FLAGSTAFF AP, AZ (KFLG). WI	SW	SW	SW	SW	SW	SSW	SW	SSW	SW	SW	ENE	ENE	SW
FORT HUACHUCA-SIERRA VISTA A	W	W	W	W	W	W	W	W	W	W	W	W	W
GILA BEND AP, AZ (KGBN). WI	N	W	W	W	W	W	W	W	W	W	N	N	W
GLENDALE-LUKE AFB, AZ (KLUF)	N	N	N	SW	SW	SW	SW	SW	N	N	N	N	N
GRAND CANYON AP, AZ (KGCN).	NE	NE	SSW	SSW	SSW	SSW	SSW	SSW	SSW	NE	NE	NE	SSW
KINGMAN AIRPORT, AZ (KIGM).	E	N	SW	SW	SW	SW	SW	SW	S	N	N	E	SW
NOGALES AIRPORT, AZ (KOLS).	SSE	S	E	E	E	E	SE	SE	ENE	S	E	SE	S
PAGE AIRPORT, AZ (KPGA). WI	W	W	W	W	W	W	W	S	N	W	W	W	W
PHOENIX SKY HARBOR AP, AZ (K	E	E	E	E	W	W	W	E	E	E	E	E	E
PHOENIX-DEER VALLEY AP, AZ (	E	E	SW	SW	SW	SW	SW	SW	E	E	NE	NE	SW
PRESCOTT AIRPORT, AZ (KPRC).	S	S	S	S	S	S	S	S	S	S	S	S	S
SAFFORD AIRPORT, AZ (KSAD).	E	E	WNW	WNW	WNW	WNW	W	E	E	E	E	E	E
SCOTTSDALE AP, AZ (KSDL). W	N	SW	SW	SW	WSW	WSW	SW	WSW	S	S	WSW	N	SW
ST. JOHNS AP, AZ (KSJN). WI	S	S	WSW	WSW	WSW	WSW	S	S	S	S	S	S	S

TUCSON INT'L AP, AZ (KTUS).	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE
TUCSON-DAVIS MONTHAN AP, AZ	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE
WINDOW ROCK AP, AZ (KRQE).	WSW	SW	SW	SW	SW	WSW	S	S	S	S	SW	SSW	SW
WINSLOW AIRPORT, AZ (KINW).	ESE	SW	SW	SW	SW	SW	SW	ESE	SW	ESE	SE	SE	SW
YUMA MCAS, AZ (KNYL). WIND	N	N	W	W	W	S	SSE	SSE	S	N	N	N	S

CALIFORNIA

PREVAILING WIND DIRECTION

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
ALAMEDA NAS, CA (KNGZ). WIN	NNW	W	W	W	W	W	W	W	W	W	W	SE	W
ALTURAS AP, CA (KAAT). WIND	S	S	W	W	W	W	W	W	W	W	S	S	W
ARCATA AP, CA (KACV). WIND	E	E	E	E	NW	NW	NW	NW	NW	E	E	E	E
AVALON-CATALINA AP, CA (KAVX	W	W	W	W	WSW	WSW	WSW	WSW	WSW	W	W	W	W
BAKERSFIELD AP, CA (KBFL).	E	E	N	NW	NW	NW	WNW	WNW	WNW	NW	E	E	NW
BEALE AFB, CA (KBAB). WIND	SSE	SSE	S	SSE	S	S	S	S	S	NNW	NNW	SSE	S
BISHOP AP, CA (KBIH). WIND	N	N	N	N	N	N	SSE	SSE	N	N	N	N	N
BLUE CANYON, CA (KBLU). WIN	ENE	S	ENE	ENE	SSW	SSW	SSW	SSW	ENE	ENE	ENE	ENE	ENE
BLYTHE AP, CA (KBLH). WIND	N	N	S	S	S	S	S	S	S	N	N	N	S
BURBANK AIRPORT, CA (KBUR).	ESE	S	S	S	S	S	S	S	S	S	S	S	S
CAMARILLO AP, CA (KCMA). WI	ENE	ENE	ENE	WSW	SW	SW	WSW	WSW	WSW	WSW	ENE	ENE	WSW
CAMP PENDLETON MCAS, CA (KNF	N	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	N	N	SSW
CAMPO AIRPORT, CA (KCZZ). W	NE	NE	SW	SW	SW	SW	NE	NE	NE	NE	NE	NE	NE
CARLSBAD AP, CA (KCRQ). WIN	W	W	W	W	WSW	WSW	WSW	WSW	W	W	W	E	W
CHINA LAKE-ARMITAGE FIELD, C	SW	SSW	SSW	SW	S	SSW	S	S	SSW	SSW	SW	SW	SSW
CHINO AP, CA (KCNO). WIND R	W	W	W	W	W	W	W	W	W	W	W	W	W
CONCORD-BUCHANON FIELD, CA (	S	S	S	W	S	S	S	SSW	W	S	S	S	S
CRESCENT CITY AP, CA (KCEC).	SSE	S	S	S	N	NNW	S	S	S	N	SSE	SSE	S
DAGGETT-BARSTOW AP, CA (KDAG	W	W	W	W	W	W	W	W	W	W	W	W	W
EDWARDS AFB, CA (KEDW). WIN	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	W	SW	SW
EL CENTRO NAF, CA (KNJK). W	W	W	W	W	W	W	W	SE	W	W	W	W	W
EL TORO MCAS, CA (KNZJ). WI	E	E	E	W	W	W	W	W	W	W	E	E	W
FRESNO AIR TERMINAL, CA (KFA	ESE	E	NW	NW	NW	NW	NW	NW	NW	NW	NW	E	NW
FULLERTON AP, CA (KFUL). WI	E	E	S	S	S	S	S	S	S	S	E	E	S
HANFORD MUNI AP, CA (KHJO).	E	ESE	NW	NW	NW	NW	NW	NW	NW	NW	NW	ESE	NW
HAWTHORNE AP, CA (KHHR). WI	W	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW	W	W	W	WSW
HAYWARD AIRPORT, CA (KHWD).	W	W	W	W	W	W	W	W	W	W	W	ENE	W
IMPERIAL AIRPORT, CA (KIPL).	W	W	W	W	W	W	W	ESE	W	W	W	W	W
IMPERIAL BEACH NOLF, CA (KNR	E	WNW	W	W	W	W	W	W	WNW	W	WNW	E	W
LANCASTER AIRPORT, CA (KWJF)	W	W	W	W	W	SW	SW	SW	SW	W	W	W	W
LEMOORE NAS, CA (KNLC). WIN	SE	NNW	NNW	NNW	NNW	NNW	NNW	NW	NNW	N	NNW	NNW	NNW
LIVERMORE AP, CA (KLVK). WI	ENE	W	W	W	W	W	W	W	W	W	ENE	ENE	W
LOMPOC AP, CA (KLPC). WIND	E	E	W	W	W	W	W	W	W	W	E	E	W
LONG BEACH AP, CA (KLGB). W	WNW	W	S	W	S	S	S	WNW	WNW	WNW	WNW	WNW	WNW
LOS ANGELES INT'L AP, CA (KL	E	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	E	WSW
LOS ANGELES-DOWNTOWN, CA (KC	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW	W	W	W	W	WSW
MADERA MUNI AP, CA (KMAE).	ESE	E	NW	NW	WNW	WNW	WNW	WNW	WNW	WNW	E	E	WNW
MARYSVILLE AIRPORT, CA (KMYV	SSE	SSE	SSE	SE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE
MCCLELLAN AFB, CA (KMCC). W	SSE	SSE	SSE	SSE	SSE	S	SSE	SSE	SSE	SE	SSE	SSE	SSE
MERCED MUNI AP, CA (KMCE).	SE	SE	NNW	NNW	NW	NW	NW	NW	NW	NW	NW	ESE	NW
MIRAMAR NAS, CA (KNKX). WIN	E	E	E	WNW	W	WNW	WNW	NW	NW	E	E	E	E
MODESTO AIRPORT, CA (KMOD).	SE	SE	NW	NW	NW	NW	NNW	NNW	NW	NW	NW	SE	NW
MOFFETT FIELD NAS, CA (KNUQ)	SE	SE	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	SE	NNW
MONTEREY AIRPORT, CA (KMRY).	ESE	ESE	W	WNW	W	W	W	W	W	W	ESE	ESE	W
MOUNT SHASTA CITY, CA (KMHS)	SE	SE	SE	NW	N	N	N	NE	NE	N	NE	SE	N
NAPA COUNTY AP, CA (KAPC).	E	E	W	W	W	SSW	SSW	SSW	SSW	SSW	E	E	SSW
OAKLAND INT'L AP, CA (KOAK).	SE	W	W	W	W	W	W	W	W	W	W	SE	W
OCEANSIDE MUNI AP, CA (KOKB)	W	NE	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	NNE	WSW
ONTARIO INT'L AP, CA (KONT).	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW	W	W	W	W	W
OROVILLE MUNI AP, CA (KOVE).	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	E	E	SSE	SSE	SSE
OXNARD AIRPORT, CA (KOXR).	W	W	W	W	W	W	W	W	W	W	W	NE	W
PALM SPRINGS AP, CA (KPSP).	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW
PALMDALE AP, CA (KPMD). WIN	W	W	SW	W	SW	SW	SW	SW	SW	SW	W	W	SW
PALO ALTO AP, CA (KPAO). WI	N	N	N	NNW	N	N	N	N	N	NNW	N	N	N
PASO ROBLES AP, CA (KPRB).	E	E	NW	NW	NW	NW	SSW	WNW	NW	NW	E	E	NW
POINT MUGU NAS, CA (KNTD).	NE	W	W	W	W	W	W	W	W	W	NE	NE	W
POINT PIEDRAS BLANCAS, CA (K	N	N	NNW	NNW	N	N	N	NW	NNW	N	N	N	N
PORTERVILLE MUNI AP, CA (KPT	E	E	ESE	NW	NW	NW	NW	S	S	ESE	E	E	NW

RAMONA AIRPORT, CA (KRNM).	W	W	W	W	W	W	W	W	W	W	WNW	E	W
RED BLUFF AP, CA (KRBL). WI	NNW	SSE	N	NNW	SSE	N	S	S	NNW	NNW	NNW	NNW	NNW
REDDING AIRPORT, CA (KRDD).	N	N	N	N	N	N	S	S	N	N	N	N	N
RIVERSIDE MUNI AP, CA (KRAL)	WNW	WNW	WNW	W	WNW	WNW	WNW	WNW	WNW	WNW	WNW	N	WNW
RIVERSIDE-MARCH AFB, CA (KRI	NW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	NW	WNW
SACRAMENTO EXECUTIVE AP, CA	SE	SSE	S	SSW	S	S	S	S	S	S	SSE	SSE	S
SACRAMENTO INT'L AP, CA (KSM	SSE	SSE	S	S	S	S	S	S	S	S	NW	SSE	S
SACRAMENTO-MATHER AP, CA (KM	SE	SE	SE	S	S	S	S	S	S	SE	SE	SE	S
SALINAS MUNI AP, CA (KSNS).	SE	SE	W	W	W	W	WNW	WNW	WNW	WNW	SE	SE	W
SAN CARLOS AP, CA (KSQL). W	N	W	W	W	W	W	W	W	N	N	N	N	W
SAN DIEGO-BROWN FIELD, CA (K	W	W	W	W	W	W	W	W	W	W	W	SE	W
SAN DIEGO-GILLESPIE FIELD, C	W	W	W	W	W	W	W	W	W	W	W	W	W
SAN DIEGO-LINDBERGH FIELD, C	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW
SAN DIEGO-MONTGOMERY FIELD,	W	W	W	W	WSW	WSW	WSW	WSW	WNW	W	W	W	W
SAN DIEGO-NORTH ISLAND NAS,	NW	W	W	W	W	W	W	NW	NW	NW	NW	NW	W
SAN FRANCISCO INT'L AP, CA (	W	W	W	W	W	W	W	W	W	W	W	W	W
SAN JOSE INT'L AP, CA (KSJC)	SSE	SSE	NNW	NNW	NNW	NNW	NW	NNW	NW	NW	NW	SE	NNW
SAN JOSE-REID HILLVIEW AP, C	SE	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW
SAN LUIS OBISPO AP, CA (KSBP	NW	NW	NW	NW	WNW	WNW	WNW	WNW	WNW	WNW	NW	NW	WNW
SAN NICHOLAS ISLAND NOLF, CA	WNW	WNW	WNW	WNW	WNW	NW	WNW	NW	WNW	WNW	NW	NW	WNW
SANDBURG, CA (KSDB). WIND R	NE	S	NW	NW	NW	NW	NW	NW	NW	NW	NE	NE	NW
SANTA ANA-JOHN WAYNE AP, CA	S	S	S	S	S	SSW	SSW	SSW	SW	SW	SW	S	SSW
SANTA BARBARA AP, CA (KSBA).	WSW	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW
SANTA MARIA AP, CA (KSMX).	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW
SANTA MONICA AIRPORT, CA (KS	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	N	SW
SANTA ROSA AIRPORT, CA (KSTS	S	SE	S	S	S	S	S	S	S	S	S	SE	S
SISKIYOU COUNTY AP-MONTAGUE,	S	S	N	N	N	N	N	N	N	N	S	S	N
SOUTH LAKE TAHOE AP, CA (KTV	S	S	S	S	S	SSW	S	S	S	S	S	S	S
STOCKTON AIRPORT, CA (KSCK).	SE	SE	W	W	W	W	W	W	W	W	W	SE	W
THERMAL AIRPORT, CA (KTRM).	N	N	NNW	NNW	NW	NW	NW	NW	NNW	NNW	NW	NW	NW
TORRANCE AIRPORT, CA (KTOA).	W	W	W	W	W	W	WNW	WNW	W	W	W	W	W
TRAVIS AFB-FAIRFIELD, CA (KS	N	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	N	N	WSW
TRUCKEE AIRPORT, CA (KTRK).	S	S	S	SSW	SW	SSW	SW	SSW	SSW	N	S	S	S
TUSTIN MCAS, CA (KNTK). WIN	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	W	WSW
TWENTYNINE PALMS EAF, CA (KN	W	W	WNW	WNW	WNW	NW	W	W	W	W	WNW	NW	WNW
UKIAH AIRPORT, CA (KUKI). W	S	SSE	WNW	WNW	N	N	N	N	N	W	SSE	SSE	N
VACAVILLE AIRPORT, CA (KVCB)	NNW	S	SSW	SSW	SSW	SSW	S	SSW	SSW	SSW	SSW	NNW	SSW
VAN NUYS AP, CA (KVNY). WIN	N	N	SE	SE	ESE	ESE	ESE	ESE	ESE	ESE	N	N	ESE
VISALIA AIRPORT, CA (KVIS).	SE	SE	NW	NW	NW	NW	NW	WNW	NW	NW	ESE	ESE	NW
WATSONVILLE MUNI AP, CA (KWV	N	NNW	W	W	W	SW	W	SW	WSW	W	NNW	NNW	W

COLORADO

PREVAILING WIND DIRECTION

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
AKRON AP, CO (KAKO). WIND R	W	W	N	N	N	S	S	S	S	S	W	W	W
ALAMOSA AP, CO (KALS). WIND	S	S	S	S	S	S	S	S	S	S	S	S	S
ASPEN-PITKIN COUNTY AP, CO (	S	S	S	S	S	SSW	SSW	SSW	S	SSW	S	S	S
BOULDER-JEFFERSON CTY AP, CO	W	W	W	N	N	N	N	NNW	N	N	W	W	W
BUCKLEY AFB, CO (KBFK). WIN	S	S	S	S	S	S	S	S	S	S	S	S	S
BURLINGTON AP, CO (KITR). W	W	S	N	N	S	S	S	S	S	S	W	N	S
COLORADO SPRINGS AP, CO (KCO	N	N	N	N	N	N	N	N	N	N	N	N	N
CORTEZ AP, CO (KCEZ). WIND	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE
CRAIG AP, CO (KCAG). WIND R	W	W	W	W	W	W	E	E	W	W	W	W	W
DENVER AIRPORT, CO (KDEN).	S	S	S	N	S	S	S	S	S	S	S	S	S
DENVER-CENTENNIAL AP, CO (KA	S	S	S	N	S	S	S	S	S	S	S	S	S
DURANGO AIRPORT, CO (KDRO).	N	N	N	WSW	W	N	N	N	N	N	N	N	N
EAGLE AIRPORT, CO (KEGE). W	E	E	E	W	W	WSW	E	E	E	E	E	E	E
FORT CARSON-BUTTS AFB, CO (K	N	N	N	N	N	N	N	N	N	N	N	N	N
FORT COLLINS-LOVELAND AP, CO	N	N	N	N	N	N	N	N	N	N	N	N	N
GRAND JUNCTION AP, CO (KGJT)	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	E	E	ESE
GREELEY AIRPORT, CO (KGXY).	N	N	N	N	E	E	E	E	E	N	N	N	N
GUNNISON AIRPORT, CO (KGUC).	N	N	N	W	N	N	N	N	N	N	N	N	N
HAYDEN AIRPORT, CO (KHDN).	ESE	ESE	ESE	W	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE	ESE
LA JUNTA AIRPORT, CO (KLHX).	W	W	W	W	E	E	E	E	W	W	W	W	W
LAMAR AIRPORT, CO (KLAA). W	W	W	E	N	S	S	S	S	S	E	W	W	W
LA VETA PASS, CO (KVTP). WI	WSW	WSW	WSW	WSW	SW	SW	N	S	WSW	SW	WSW	WSW	WSW
LEADVILLE AIRPORT, CO (KLXV)	N	N	N	N	N	W	N	N	N	N	N	N	N

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
LIMON MUNI AP, CO (KLIC). W	N	N	N	N	N	S	S	S	N	N	N	N	N
MEEKER AIRPORT, CO (KEEO).	NE	NE	NE	NE	NE	NE	NE	ENE	ENE	NE	NE	NE	NE
MONTROSE AP, CO (KMTJ). WIN	SE	SSE	SE	SE	SE	SE	SE	SE	SE	SE	SSE	SSE	SE
MONARCH PASS, CO (KMYP). WI	WSW	WSW	WSW	WSW	WSW	WSW	NE	WSW	WSW	WSW	WSW	WSW	WSW
MONUMENT PASS, CO (KMNH). WI	SSW	S	S	S	S	S	S	S	S	S	S	SW	S
PUEBLO AIRPORT, CO (KPUB).	W	W	E	E	E	E	E	E	E	E	W	W	E
RED CLIFF PASS, CO (KCCU).	W	WNW	W	W	WSW	S	S	W	W	W	W	W	W
RIFLE AIRPORT, CO (KRIL). W	S	S	W	W	W	W	W	W	W	W	S	S	W
SPRINGFIELD AP, CO (KSPD).	W	S	S	S	S	S	S	S	S	S	S	W	S
TRINIDAD AP, CO (KTAD). WIN	W	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	W	W	WSW
WOLF CREEK PASS, CO (KCPW).	W	W	SSW	SSW	SSW	SSW	NE	SW	SW	SSW	SSW	SW	SSW

HAWAII

PREVAILING WIND DIRECTION

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
BRADSHAW AAF, HI (PHSF). WI	W	W	W	W	W	W	W	W	W	W	W	SE	W
HILO INT'L AP, HI (PHTO). W	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW
HONOLULU INT'L AP, HI (PHNL)	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE
KAHULUI AP, HI (PHOG). WIND	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
KAILUA-KONA INT'L AP, HI (PH	E	E	W	W	W	SSW	SSW	WSW	WSW	SW	S	ESE	WSW
KANEOHE MCAS, HI (PHNG). WI	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	E	ENE
KAPOLEI-KALEALOA AP, HI (PHJ	NE	NE	NE	ENE	NE	ENE	ENE	ENE	NE	ENE	NE	ENE	ENE
LAHAINA-KAPALUA AP, HI (PHJH	NE	NE	NE	ENE	ENE	ENE	NE	ENE	ENE	ENE	NE	NE	NE
LANAI CITY AP, HI (PHNY). W	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
LIHUE AP, HI (PHLI). WIND R	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	NE	ENE	ENE
MOLOKAI AP-KAUNAKAKAI, HI (P	ENE	NE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE	ENE
WAHIAWA-WHEELER AAF, HI (PHH	E	E	E	E	E	E	ENE	E	ENE	E	ENE	E	E

IDAHO

PREVAILING WIND DIRECTION

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
BOISE AP, ID (KBOI). WIND R	SE	SE	SE	NW	NW	NW	NW	NW	SE	SE	SE	ESE	SE
BURLEY AP, ID (KBYI). WIND	W	W	W	W	W	W	W	W	W	W	W	W	W
CALDWELL AIRPORT, ID (KEUL).	SSE	SSE	SSE	WNW	WNW	WNW	WNW	WNW	WNW	WNW	SSE	SE	WNW
CHALLIS AIRPORT, ID (KLLJ).	S	S	N	N	W	W	W	W	W	N	S	S	WNW
CHALLIS AP, ID (KU15). WIND	S	S	N	N	N	N	N	W	N	N	N	S	N
COEUR D'ALENE AP, ID (KCOE).	NNE	NNE	S	S	S	S	S	S	S	S	NNE	NNE	NNE
ELK CITY, ID (KP69). WIND R	N	NNE	NNE	NNE	NNE	NNE	NNE	N	N	NNE	NNE	N	NNE
HAILEY-SUN VALLEY AP, ID (KS	NNW	NNW	N	N	S	S	S	S	S	N	N	N	N
IDAHO FALLS AP, ID (KIDA).	N	N	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	N	N	SSW
JEROME AIRPORT, ID (KJER).	NE	NE	W	W	W	W	W	W	E	W	ENE	NE	W
LEWISTON AIRPORT, ID (KLWS).	S	E	E	E	WNW	E	E	WNW	E	E	E	S	E
MCCALL AIRPORT, ID (KMYL).	S	S	S	N	N	NW	S	SSW	S	S	S	S	S
MOUNTAIN HOME AFB, ID (KMUO)	ESE	ESE	ESE	NW	NW	NW	NW	NW	NW	NW	ESE	ESE	ESE
MULLAN PASS VOR, ID (KMLP).	S	S	S	SW	NW	NW	NW	NW	SW	S	S	S	S
POCATELLO AP, ID (KPIH). WI	SW	S	SW	SW	WSW	WSW	W	W	W	SW	SW	SW	SW
REXBURG AP, ID (KRXE). WIND	SSW	S	S	S	S	S	S	S	S	S	S	S	S
SALMON AIRPORT, ID (KSMN).	N	N	N	N	N	N	N	N	N	N	N	N	N
STANLEY RNGR STN, ID (KSNT).	SSE	SSE	SSE	N	S	S	S	S	S	S	S	SSE	S
TWIN FALLS AP, ID (KTWF). W	SSW	W	W	W	W	W	SSW	SSW	SSW	SSW	SSW	S	SSW

MONTANA

PREVAILING WIND DIRECTION

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
BAKER MUNI AP, MT (KBHK). W	W	W	SE	SE	W	W	SE	SE	ESE	W	W	W	W
BILLINGS AP, MT (KBIL). WIN	SW	SW	SW	SW	N	N	N	SW	SW	SW	SW	SW	SW
BOZEMAN-BELGRADE AP, MT (KBZ	S	SSE	SSE	W	SE	W	SSE	SSE	SE	SE	SSE	SSE	SSE
BUTTE AP, MT (KBTM). WIND R	S	S	S	N	N	N	N	S	S	S	S	S	S
CUT BANK AP, MT (KCTB). WIN	WSW	WSW	WSW	W	W	W	W	W	W	WSW	WSW	WSW	WSW

DILLON AP, MT (KDLN). WIND	S	S	S	S	S	S	S	S	S	S	S	S	S
GLASGOW AIRPORT, MT (KGGW).	ESE	ESE	E	E	E	E	E	E	E	ESE	E	ESE	E
GLENDIVE AIRPORT, MT (KGDV).	S	S	S	NW	NW	W	NW	S	NW	S	S	S	S
GREAT FALLS AP, MT (KGTF).	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW
GREAT FALLS-MALSTROM AFB, MT	SW	SW	SW	SW	SW	W	W	W	SW	SW	SW	SW	SW
HAVRE AIRPORT, MT (KHVR). W	SW	SW	SW	E	E	E	E	E	SW	SW	SW	SW	SW
HELENA AIRPORT, MT (KHLN).	W	W	W	W	W	W	W	W	W	W	W	W	W
JORDAN AIRPORT, MT (KJDN).	W	W	W	W	W	W	W	W	W	W	W	W	W
KALISPELL AP, MT (KFCA). WI	S	S	SSE	SSE	SSE	SSE	SSE	S	S	S	S	S	S
LEWISTOWN AIRPORT, MT (KLWT)	SW	W	W	WNW	E	ESE	ESE	ESE	ESE	W	SW	SW	W
LIVINGSTON AP, MT (KLVM). W	WSW	WSW	W	W	W	W	W	W	W	W	WSW	WSW	W
MILES CITY AP, MT (KMLS). W	S	S	NW	NW	NW	NW	NW	SSE	NW	S	S	S	NW
MISSOULA AIRPORT, MT (KMSO).	ESE	ESE	N	NW	N	NW	N	N	N	W	ESE	ESE	NW
SIDNEY MUNI AP, MT (KSDY).	SSW	S	S	N	S	S	S	S	S	S	SSW	SSW	S
WOLF POINT AP, MT (KOLF). W	W	W	ENE	E	W	W	E	E	E	W	W	W	W

NEVADA

PREVAILING WIND DIRECTION

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
CALIENTE AP, NV (KP38). WIN	NNE	S	S	S	S	S	S	S	S	S	NNE	NNE	S
DESERT ROCK-MERCURY, NV (KDR	NNE	NNE	NNE	NNE	SW	SW	SW	SSW	SSW	NNE	NNE	NNE	SSW
ELKO AIRPORT, NV (KEKO). WI	E	E	W	W	W	W	W	W	W	W	E	E	W
ELY AIRPORT, NV (KELY). WIN	S	S	S	S	S	S	S	S	S	S	S	S	S
EUREKA AIRPORT, NV (KP68).	SSE	SSE	S	S	S	S	S	S	S	S	S	S	S
FALLON NAS, NV (KNFL). WIND	S	S	S	N	W	N	W	WNW	N	N	S	S	S
LAS VEGAS AIRPORT, NV (KLAS)	W	W	W	SW	SW	S	S	S	S	W	W	W	S
LAS VEGAS-NELLIS AFB, NV (KL	NE	NE	S	S	S	S	S	S	S	NNE	NNE	NE	S
LOVELOCK AIRPORT, NV (KLOL).	NNE	NNE	NNE	N	W	W	S	S	NE	NNE	E	NE	NNE
NORTH LAS VEGAS AP, NV (KVGT	NW	NW	NNW	SSW	S	S	S	S	NW	NW	NNW	NW	NW
RENO-TAHOE AP, NV (KRNO). W	S	S	W	W	W	W	W	W	W	S	S	S	W
TONOPAH AIRPORT, NV (KTPH).	N	N	N	N	N	N	S	N	N	N	N	N	N
WINNEMUCCA AP, NV (KWMC). W	S	S	S	W	W	W	W	W	W	S	S	S	S

NEW MEXICO

PREVAILING WIND DIRECTION

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
ALAMOGORDO-HOLLOMAN AFB, NM	S	S	S	S	S	S	S	S	S	S	SSE	N	S
ALBUQUERQUE-DOUBLE EAGLE II	NNW	NW	W	W	W	S	S	S	NNW	S	NNW	NNW	W
ALBUQUERQUE INT'L AP, NM (KA	N	N	N	W	W	E	E	E	E	N	N	N	N
ARTESIA AP, NM (KATS). WIND	WSW	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	N	SSE
CARLSBAD AP, NM (KCNM). WIN	W	W	W	W	W	SSE	S	SSE	S	S	W	W	S
CLAYTON MUNI AP, NM (KCAO).	W	N	N	N	S	S	S	S	S	S	W	WSW	S
CLINES CORNERS, NM (KCQC).	WNW	WNW	W	W	W	W	W	W	W	W	WNW	WNW	W
CLOVIS MUNI AP, NM (KCVN).	W	W	W	W	S	S	S	S	S	S	W	W	S
CLOVIS-CANNON AFB, NM (KCVS)	W	W	W	W	S	S	S	S	S	W	W	W	W
DEMING AP, NM (KDMN). WIND	W	W	W	W	W	W	E	E	E	W	W	W	W
FARMINGTON AP, NM (KFMN). W	E	E	W	W	W	E	E	E	E	E	E	E	E
GALLUP AIRPORT, NM (KGUP).	WSW	WSW	WSW	WSW	WSW	WSW	WSW	S	WSW	WSW	WSW	SW	WSW
GRANTS AIRPORT, NM (KGNT).	NW	NW	NW	W	W	W	SE	SE	NW	NW	NW	NW	NW
HOBBS AIRPORT, NM (KHOB). W	WSW	S	S	S	S	S	S	S	S	S	S	S	S
LAS CRUCES AP, NM (KLRU). W	W	W	W	W	W	W	SE	W	SE	W	W	W	W
LAS VEGAS AP, NM (KLVS). WI	S	S	S	S	S	S	S	SSW	S	S	S	S	S
LOS ALAMOS AP, NM (KLAM). W	S	S	S	S	S	S	S	S	S	S	S	S	S
RATON MUNI AP, NM (KRTN). W	ENE	NE	N	W	S	S	N	N	N	S	ENE	NE	N
ROSWELL AIRPORT, NM (KROW).	N	SSE	SSE	S	S	SSE	SSE	SSE	SSE	SSE	N	N	SSE
RUIDOSO AIRPORT, NM (KSRR).	W	W	W	SSW	SSW	SSW	ESE	ESE	ESE	W	W	W	W
SANTA FE AIRPORT, NM (KSAF).	N	N	N	N	WSW	N	N	N	N	N	N	N	N
SILVER CITY AP, NM (KSVC).	W	W	W	W	W	W	WNW	NNW	W	NNW	NNW	NNW	W
TAOS MUNI AIRPORT, NM (KSKX)	N	N	N	W	W	W	N	N	N	N	N	N	N
TRUTH OR CONSEQUENCES AP, NM	NW	S	S	S	S	S	S	WNW	S	S	NW	N	S

OREGON

PREVAILING WIND DIRECTION

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
ASTORIA AIRPORT, OR (KAST).	E	E	E	S	W	W	NW	NW	NW	E	E	E	E
AURORA AIRPORT, OR (KUAO).	S	S	S	S	S	S	N	N	N	S	S	S	S
BAKER CITY AP, OR (KBKE). W	ESE	ESE	ESE	N	N	NNW	NNW	NNW	NNW	N	ESE	ESE	NNW
BURNS MUNI AP, OR (KBNO). W	E	E	WNW	NW	NW	WNW	WNW	WNW	WNW	WNW	E	E	WNW
CORVALLIS AP, OR (KCVO). WI	S	S	S	S	WNW	NW	NW	NW	WNW	S	S	S	S
EUGENE AIRPORT, OR (KEUG).	S	S	S	S	N	N	N	N	N	S	S	S	N
HERMISTON MUNI AP, OR (KHRI)	WSW	S	WSW	WSW	WSW	WSW	WSW	WSW	SW	WSW	S	WSW	WSW
KLAMATH FALLS AP, OR (KLMT).	SSE	SSE	W	W	W	W	W	W	NNW	W	SSE	SSE	W
LA GRANDE AP, OR (KLGD). WI	S	S	S	NW	NW	NW	NW	NW	NW	S	S	S	S
LAKEVIEW AIRPORT, OR (KLKV).	S	S	S	N	N	N	N	N	N	N	S	S	N
MCMINNVILLE MUNI AP, OR (KMM	N	N	S	SW	SW	SW	SW	SW	N	N	N	N	N
MEACHAM AIRPORT, OR (KMEH).	SSE	S	W	W	W	W	W	N	W	W	S	S	W
MEDFORD AIRPORT, OR (KMFR).	N	N	N	N	WNW	WNW	WNW	WNW	WNW	N	N	N	N
NEWPORT MUNI AP, OR (KONP).	E	E	S	S	NNW	NNW	NNW	NNW	N	S	S	E	S
NORTH BEND MUNI AP, OR (KOTH	SSE	SSE	SSE	SSE	N	N	N	N	N	N	SSE	SSE	N
ONTARIO MUNI AP, OR (KONO).	W	W	W	W	W	NW	W	W	W	W	W	W	W
PENDLETON AP, OR (KPDT). WI	S	S	W	W	W	W	W	W	SE	SE	S	S	W
PORTLAND INT'L AP, OR (KPDX)	ESE	ESE	ESE	S	NNW	NNW	NNW	NNW	NW	NW	ESE	ESE	ESE
PORTLAND-HILLSBORO AP, OR (K	S	S	S	S	NW	NW	NW	NW	NW	S	S	S	S
PORTLAND-TROUTDALE AP, OR (K	E	E	E	E	W	W	W	W	W	E	E	E	E
REDMOND AIRPORT, OR (KRDM).	S	S	S	WNW	NW	NW	NNW	NNW	S	S	S	S	S
ROME, OR (KREO). WIND ROSE.	S	S	SSE	S	N	WSW	N	S	SSE	SSE	S	S	S
ROSEBURG AIRPORT, OR (KRBG).	S	S	N	N	N	N	N	N	N	N	S	SSE	N
SALEM AIRPORT, OR (KSLE). W	S	S	S	S	S	N	N	N	N	S	S	S	S
SEXTON SUMMIT, OR (KSXT). W	S	S	S	S	NNW	NNW	NNW	NNW	NNW	S	S	S	S
THE DALLES AP, OR (KDLS). W	E	NW	NW	WNW	NW	NW	NW	NW	NW	WNW	E	E	NW

UTAH

PREVAILING WIND DIRECTION

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
BRYCE CANYON AP, UT (KBCE).	W	W	W	W	W	W	W	W	W	W	W	W	W
CANYONLANDS AP-MOAB, UT (KCN	NW	W	W	W	W	SW	SE	E	W	W	W	NW	W
CEDAR CITY AP, UT (KCDC).	SSW	SW	SSW	SSW	SSW	SSW	SW	SSW	SSW	SW	N	SSW	SSW
LOGAN AIRPORT, UT (KLGU). W	N	N	N	N	N	N	N	S	N	N	N	N	N
MILFORD AIRPORT, UT (KMLF).	S	SSW	S	SSW	S	SSW	SSW	S	S	S	S	S	S
OGDEN AIRPORT, UT (KOGD). W	SSE	S	SSE	S	S	S	S	S	S	S	S	S	S
OGDEN-HILL AFB, UT (KHIF).	E	E	E	E	E	E	E	E	E	E	E	E	E
PRICE-CARBON COUNTY AP, UT (	N	N	N	N	N	N	N	N	N	N	N	N	N
PROVO MUNI AP, YT (KPVU). W	NW	NW	NW	NW	NW	NW	SE	SE	SE	SE	SSE	SSE	NW
SALT LAKE CITY AP, UT (KSLC)	S	S	SSE	SSE	SSE	S	SSE	SSE	SSE	SE	SE	S	SSE
ST. GEORGE MUNI AP, UT (KSGU	E	ENE	ENE	W	W	W	W	ENE	ENE	ENE	E	E	ENE
VERNAL AIRPORT, UT (KVEL).	W	W	WNW	W	W	W	W	W	W	W	WNW	W	W
WENDOVER AP, UT (KENV). WIN	NW	NW	E	NW	E	E	E	E	E	E	E	E	E

WASHINGTON

PREVAILING WIND DIRECTION

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
ARLINGTON AP, WA (KAWO). WI	SSE	SSE	S	S	NW	NW	NW	NW	NW	SSE	SSE	SSE	SSE
BELLINGHAM AP, WA (KBLI). W	S	S	S	S	S	S	S	S	S	S	S	NNE	S
BREMERTON MUNI AP, WA (KPWT)	SSW	SSW	SSW	SSW	SSW	SSW	SSW	NE	NE	SSW	SSW	SSW	SSW
DEER PARK AP, WA (KDEW). WI	N	NNE	S	S	S	S	S	S	SSE	N	N	N	S
ELLENSBURG AP, WA (KELN). W	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	E	E	NW
EPHRATA AIRPORT, WA (KEPH).	N	N	N	N	S	S	S	S	N	N	N	N	N
EVERETT-PAINE FIELD, WA (KPA	S	S	S	S	N	N	N	N	N	S	S	S	N
FORT LEWIS AAF, WA (KGRF).	S	S	S	S	S	S	S	S	S	S	S	S	S
FRIDAY HARBOR AP, WA (KFHR).	SE	SE	SE	WSW	SW	SW	SW	SE	SE	SE	SE	SE	SE
HANFORD, WA (KHMS). WIND RO	NW	NW	NW	W	NW	NW	NW	NW	W	W	NW	NW	NW
HOQUIAM AIRPORT, WA (KHQM).	E	E	E	W	W	W	W	W	W	E	E	E	E

KELSO-LONGVIEW AP, WA (KKLS)	SSE	S	S	S	N	WNW	N	N	N	SSE	SSE	SSE	SSE
MOSES LAKE AP, WA (KMWH). W	N	N	N	N	S	SSW	S	N	N	N	N	N	N
OLYMPIA AP, WA (KOLM). WIND	S	S	S	S	S	S	SSW	S	S	S	S	S	S
OMAK AIRPORT, WA (KOMK). WI	S	S	N	N	N	N	N	N	N	N	S	S	N
PASCO-TRI CITIES AP, WA (KPS	NW	NW	SW	SW	SW	SW	SW	SSW	NNW	SW	SW	NW	SW
PORT ANGELES AP, WA (KCLM).	WSW	SW	W	W	W	W	W	W	W	W	SW	SW	W
PULLMAN-MOSCOW AP, WA (KPUW)	E	E	E	SW	WSW	WSW	WSW	WSW	WSW	E	E	E	E
QUILLAYUTE AP, WA (KUIL). W	ENE	ENE	S	S	W	W	W	S	S	ENE	ENE	ENE	S
RENTON MUNI AP, WA (KRNT).	S	S	S	S	S	S	NNW	S	NNW	S	S	S	S
SCAPPOOSE AIRPORT, WA (KSPB)	S	S	S	N	N	N	N	N	N	W	SSE	S	N
SEATTLE-BOEING FIELD, WA (KB	S	S	S	S	S	S	NW	NW	NW	SSE	SSE	SSE	S
SEATTLE-TACOMA AP, WA (KSEA)	S	S	S	S	SSW	SSW	SW	N	N	S	S	S	S
SHELTON AIRPORT, WA (KSHN).	SW	SW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	SW	SW	SW	WSW
SKYKOMISH AP, WA (S88). WIN	SSE	SSE	NW	S	NW	NW	NW	NW	NW	S	SSE	S	NW
SPOKANE-FAIRCHILD AFB, WA (K	SSW	NE	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW
SPOKANE-FELTS FIELD, WA (KSF	SW	SSW	SW	SSW	SSW	SSW	NNE	NNE	NNE	NNE	SSW	SW	SW
SPOKANE-GEIGER FIELD, WA (KG	NE	NE	S	S	SSW	S	S	SW	S	S	NE	NE	S
STAMPEDE PASS, WA (KSMP). W	E	E	E	WSW	WSW	WSW	WSW	WSW	SW	WSW	E	E	WSW
TACOMA NARROWS AP, WA (KTIW)	S	S	S	S	S	S	N	S	N	S	S	S	S
TACOMA-MCCHORD AFB, WA (KTCM	S	S	S	S	S	S	S	S	S	S	S	S	S
TOLEDO AIRPORT, WA (KTDO).	S	S	S	S	NW	NW	NW	NW	NW	S	S	S	S
VANCOUVER AIRPORT, WA (KVUO)	ESE	ESE	ESE	NW	NW	NW	NW	NW	NW	ESE	ESE	ESE	ESE
WALLA WALLA AP, WA (KALW).	S	S	S	S	S	S	S	S	S	S	S	S	S
WENATCHEE AP, WA (KEAT). WI	W	WNW	W	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW	WNW
WHIDBEY ISLAND NAS-OAK HARBO	SE	ESE	SE	W	W	W	WSW	W	W	ESE	SE	E	W
YAKIMA AIRPORT, WA (KYKM).	W	W	W	W	W	W	W	W	W	W	W	W	W

WYOMING

PREVAILING WIND DIRECTION

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
BIG PINEY AP, WY (KBPI). WI	ENE	ENE	NW	NW	NW	NW	W	W	NW	NW	NW	NW	NW
BUFFALO AP, WY (KBYG). WIND	NNW	NNW	NNW	NNW	N	NNW	N	NNW	NNW	NNW	WSW	NNW	NNW
CASPER AIRPORT, WY (KCPR).	SW	SW	SW	WSW	WSW	WSW	WSW	SW	WSW	SW	SW	SW	SW
CHEYENNE AP, WY (KCYS). WIN	W	W	W	W	W	W	W	W	W	W	W	W	W
CODY AP, WY (KCOD). WIND RO	W	WSW	N	N	N	N	N	N	N	N	W	WSW	N
DOUGLAS AP, WY (KDGW). WIND	NW	W	W	SE	SE	W	SE	SE	ESE	SE	W	W	W
EVANSTON AP, WY (KEVW). WIN	SW	SW	WSW	WSW	WSW	WSW	SW	SW	SW	WSW	SW	SW	SW
GILLETTE AP, WY (KGCC). WIN	SW	SW	S	S	S	S	S	S	S	S	SW	SW	S
GREYBULL AP, WY (KGEY). WIN	NW	NW	NW	NW	NW	NNW	WNW	ESE	NNW	ESE	ESE	ESE	NW
JACKSON HOLE AP, WY (KJAC).	NNE	NNE	NNE	NNE	N	SW	N	NNE	NNE	NNE	SSW	NNE	NNE
LANDER AIRPORT, WY (KLND).	W	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW	WSW
LARAMIE AIRPORT, WY (KLAR).	SW	SW	SW	W	SSE	SE	SE	SSE	S	SW	SW	SW	SW
RAWLINS MUNI AP, WY (KRWL).	SW	SW	SW	WSW	WSW	WSW	SW	SW	SW	WSW	SW	SW	SW
RIVERTON AIRPORT, WY (KRIW).	W	W	W	W	W	W	NW	NW	NW	NW	W	W	W
ROCK SPRINGS AP, WY (KRKS).	W	W	W	W	W	W	W	W	W	W	W	W	W
SHERIDAN AIRPORT, WY (KSHR).	NW	NW	NW	NW	NW	NW	WNW	WNW	NW	NW	NW	WNW	NW
TORRINGTON MUNI AP, WY (KTOR	W	W	W	NNW	ESE	E	SE	SE	ESE	WNW	W	WNW	W
WORLAND MUNI AP, WY (KWRL).	S	S	N	N	N	N	N	N	N	S	S	S	N
YELLOWSTONE LAKE, WY (KP60).	SW	SW	SW	SW	SW	SW	SW	W	W	W	W	SW	SW

APPENDIX B
2005–2007 SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT AIR QUALITY DATA

2005 AIR QUALITY
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

2005

Source/Receptor Area No.	Location	Station No.	Carbon Monoxide: No. Days of Data	CO: Max. Conc. in ppm 1-hour	CO: Max Conc. in ppm 8-hour	CO: No. Days Standard Exceeded a) Federal ≥ 9.5 ppm 8-hour	CO: State > 9.0 ppm 8-hour	Ozone: No. Days of Data	Ozone: Max. Conc. in ppm 1-hour	Ozone: Max. Conc. in ppm 8-hour	Ozone: Fourth High Conc. ppm 8-hour	Ozone: No. Days Standard Exceeded — Health Advisory ≥ 0.15 ppm 1-hour	Federal b) > 0.12 ppm 1-hour	Federal b) > 0.08 ppm 8-hour	State c) > 0.09 ppm 1-hour	State c) > 0.07 ppm 8-hour	Nitrogen Dioxide: No. Days of Data	NO2: Max Conc. in ppm 1-hour d)	NO2: Annual Average d) AAM Conc. ppm	Sulfur Dioxide: No. Days of Data	SO2: Max. Conc. in ppm 1-hour e)	SO2: Max. Conc. in ppm 24-hour e)
	LOS ANGELES COUNTY																					
1	Central LA	087	365	4	3.1	0	0	365	0.121	0.098	0.072	0	0	1	2	2	364	0.13	0.0278	357	0.07	0.010
2	Northwest Coastal LA County	091	365	3	2.1	0	0	361	0.114	0.090	0.077	0	0	1	7	5	365	0.08	0.0178	--	--	--
3	Southwest Coastal LA County	820	365	3	2.1	0	0	365	0.086	0.076	0.068	0	0	0	0	1	365	0.09	0.0134	365	0.04	0.012
4	South Coastal LA County 1	072	365	4	3.5	0	0	365	0.091	0.068	0.059	0	0	0	0	0	365	0.14	0.0241	365	0.04	0.010
4	South Coastal LA County 2	077	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
6	West San Fernando Valley	074	350	5	3.5	0	0	365	0.138	0.113	0.098	0	2	12	30	29	365	0.09	0.0202	--	--	--
7	East San Fernando Valley	069	363	4	3.4	0	0	365	0.142	0.108	0.081	0	2	2	13	12	365	0.09	0.0294	361	0.01	0.006
8	West San Gabriel Valley	088	363	4	2.8	0	0	363	0.145	0.114	0.086	1	2	5	13	12	363	0.10	0.0241	--	--	--
9	East San Gabriel Valley 1	060	365	3	1.7	0	0	365	0.145	0.122	0.087	1	4	6	20	14	365	0.09	0.0251	--	--	--
9	East San Gabriel Valley 2	591	358	2	1.9	0	0	363	0.160	0.130	0.099	2	8	13	31	29	360	0.09	0.0224	--	--	--
10	Pomona/Walnut Valley	075	365	4	2.5	0	0	361	0.140	0.112	0.096	0	4	11	26	18	365	0.08	0.0312	--	--	--
11	South San Gabriel Valley	085	113*	3*	2.4*	0*	0*	116*	0.077*	0.065*	0.051*	0*	0*	0*	0*	0*	116*	0.09*	0.0308*	--	--	--
12	South Central LA County	084	365	7	5.9	0	0	365	0.111	0.081	0.063	0	0	0	1	1	360	0.11	0.0312	--	--	--
13	Santa Clarita Valley	090	365	2	1.3	0	0	364	0.173	0.141	0.118	5	11	47	65	69	347	0.087	0.0190	--	--	--
	ORANGE COUNTY																					
16	North Orange County	3177	365	7	3.1	0	0	365	0.094	0.075	0.067	0	0	0	0	1	361	0.09	0.0249	--	--	--
17	Central Orange County	3176	365	4	3.3	0	0	365	0.095	0.077	0.075	0	0	0	1	4	365	0.09	0.0211	--	--	--
18	North Coastal Orange County	3195	364	5	3.2	0	0	338	0.085	0.073	0.068	0	0	0	0	0	355	0.09	0.0131	359	0.01	0.008
19	Saddleback Valley	3812	365	2	1.6	0	0	365	0.125	0.085	0.078	0	1	1	3	6	--	--	--	--	--	--
	RIVERSIDE COUNTY																					
22	Norco/Corona	4155	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
23	Metropolitan Riverside County 1	4144	363	3	2.5	0	0	358	0.144	0.129	0.105	0	3	33	46	62	365	0.08	0.0222	365	0.02	0.011
23	Metropolitan Riverside County 2	4146	365	4	2.4	0	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
23	Mira Loma	5212	362	3	2.1	0	0	358	0.135	0.116	0.105	0	3	25	34	51	346	0.08	0.0160	--	--	--
24	Perris Valley	4149	--	--	--	--	--	365	0.126	0.103	0.082	0	1	3	11	18	--	--	--	--	--	--
25	Lake Elsinore	4158	365	2	1.0	0	0	365	0.149	0.119	0.097	1	4	15	37	46	365	0.07	0.0142	--	--	--
29	Banning Airport	4164	--	--	--	--	--	359	0.144	0.132	0.119	0	10	39	47	66	329	0.07	0.0148	--	--	--
30	Coachella Valley 1**	4137	364	2	0.8	0	0	363	0.139	0.116	0.108	0	4	35	41	63	352	0.10	0.0120	--	--	--
30	Coachella Valley 2**	4157	--	--	--	--	--	365	0.114	0.095	0.092	0	0	18	18	36	--	--	--	--	--	--
	SAN BERNARDINO COUNTY																					
32	Northwest San Bernardino Valley	5175	364	3	1.8	0	0	365	0.149	0.121	0.101	1	8	15	34	34	364	0.10	0.0313	--	--	--
33	Southwest San Bernardino Valley	5817	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
34	Central San Bernardino Valley 1	5197	365	3	2.1	0	0	355	0.150	0.128	0.113	2	9	23	49	47	361	0.10	0.0310	365	0.01	0.004
34	Central San Bernardino Valley 2	5203	356	4	2.4	0	0	361	0.163	0.129	0.114	4	9	31	54	58	361	0.0.08	0.0259	--	--	--
35	East San Bernardino Valley	5204	--	--	--	--	--	364	0.146	0.123	0.113	1	6	24	36	45	--	--	--	--	--	--
37	Central San Bernardino Mountains	5181	--	--	--	--	--	354	0.182	0.145	0.130	7	18	69	80	102	--	--	--	--	--	--
38	East San Bernardino Mountains	5818	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	DISTRICT MAXIMUM			7	5.9	0	0		0.182	0.145	0.130	7	18	69	80	102		0.14	0.0313		0.07	0.012
	SOUTH COAST AIR BASIN			7	5.9	0	0		0.182	0.145	0.130	11	30	84	102	120		0.14	0.0313		0.07	0.012

ppm - Parts Per Million parts of air, by volume. AAM = Annual Arithmetic Mean -- - Pollutant not monitored.

* Less than 12 full months of data. May not be representative. ** Salton Sea Air Basin.

a) - The federal 1-hour standard (1-hour average CO > 35 ppm) and state 1-hour standard (1-hour average CO > 20 ppm) were not exceeded. For comparison of data with the federal 8-hour CO standard (9 ppm), 8-hour averages with one decimal place should be rounded to integers.

b) – The federal 1-hour ozone standard was revoked and replaced by the 8-hour average ozone standard effective June 15, 2004.

c) - Air Resources Board has established a new 8-hour average California ozone standard of 0.07 ppm effective May 17, 2005.

d) - The state standard is 1-hour average NO_2 > 0.25 ppm. The federal standard is annual arithmetic mean NO_2 > 0.0534 ppm.

e) - The state standards are 1-hour average SO_2 > 0.25 ppm and 24-hour average SO_2 > 0.04 ppm. The federal standards are annual arithmetic mean SO_2 > 0.03 ppm, 24-hour average > 0.14 ppm, and 3-hour average > 0.50 ppm.

South Coast
Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765-4182
www.aqmd.gov

The map showing the locations of source/receptor areas can be accessed via the Internet at http://www.aqmd.gov/telemweb/areamap.aspx. Locations of source/receptor areas are shown on the "South Coast Air Quality Management District Air Monitoring Areas" map available free of charge from SCAQMD Public Information.

2005 AIR QUALITY
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

2005

No.	Source/Receptor Area Location	Station No.	PM10 [f)]: No. Days of Data	PM10: Max. Conc. in µg/m³ 24-hour	PM10: No. (%) Samples Exceeding Standard Federal > 150 µg/m³ 24-hour	PM10: No. (%) Samples Exceeding Standard State > 50 µg/m³ 24-hour	PM10: Annual Average [i)] AAM Conc. µg/m³	PM2.5 [g)]: No. Days of Data	PM2.5: Max. Conc. in µg/m³ 24-hour	PM2.5: 98th Percentile Conc. in µg/m³ 24-hour	PM2.5: No. (%) Samples Exceeding Standard Federal > 65 µg/m³ 24-hour	PM2.5: Annual Averages [j)] AAM Conc. µg/m³	TSP [h)]: No. Days of Data	TSP: Max. Conc. in µg/m³ 24-hour	TSP: Annual Average AAM Conc. µg/m³	Lead [h)]: Max. Monthly Average Conc. [k)] µg/m³	Lead: Max. Quarterly Average Conc. [k)] µg/m³	Sulfate [h)]: Max. Conc. in µg/m³ 24-hour	Sulfate: No. (%) Samples Exceeding Standard State ≥ 25 µg/m³ 24-hour
	LOS ANGELES COUNTY																		
1	Central LA	087	61	70	0	4(6.6)	29.6	334	73.7	53.2	2(0.6)	18.1	66	141	66.7	0.02	0.02	14.2	0
2	Northwest Coastal LA County	091	--	--	--	--	--	--	--	--	--	--	59	89	41.6	--	--	11.7	0
3	Southwest Coastal LA County 2	820	54	44	0	0	22.9	--	--	--	--	--	--	--	--	--	--	--	--
4	South Coastal LA County 1	072	59	66	0	5(8.5)	29.6	324	53.9	41.4	0	16.0	61	112	55.5	0.01	0.01	16.8	0
4	South Coastal LA County 2	077	59	131	0	18(30.5)	43.4	344	50.8	37.8	0	14.7	--	--	--	--	--	--	--
6	West San Fernando Valley	074	--	--	--	--	--	104	39.6	35.8	0	13.9	--	--	--	--	--	--	--
7	East San Fernando Valley	069	61	92	0	5(8.2)	34.3	106	63.2	50.6	0	17.9	--	--	--	--	--	--	--
8	West San Gabriel Valley	088	--	--	--	--	--	113	62.9	43.1	0	15.1	58	89	44.6	--	--	11.2	0
9	East San Gabriel Valley 1	060	55	76	0	12(21.8)	35.1	292*	132.7*	53.2*	1(0.3)*	17.0*	58	142	70.9	--	--	10.2	0
9	East San Gabriel Valley 2	591	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10	Pomona/Walnut Valley	075	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
11	South San Gabriel Valley	085	--	--	--	--	--	76*	58.2*	54.0*	0*	17.0*	39*	104*	66.4*	0.03	0.03	9.9	0
12	South Central LA County	084	--	--	--	--	--	114	54.6	48.5	0	17.5	57	118	67.4	0.03	0.02	17.3	0
13	Santa Clarita Valley	090	60	55	0	1(1.7)	25.8	--	--	--	--	--	--	--	--	--	--	--	--
	ORANGE COUNTY																		
16	North Orange County	3177	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17	Central Orange County	3176	61	65	0	3(4.9)	28.2	333	54.7	41.9	0	14.7	--	--	--	--	--	--	--
18	North Coastal Orange County	3195	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
19	Saddleback Valley	3812	55	41	0	0	19.0	113	35.4	31.4	0	10.7	--	--	--	--	--	--	--
	RIVERSIDE COUNTY																		
22	Norco/Corona	4155	58	79	0	5(8.6)	31.6	--	--	--	--	--	--	--	--	--	--	--	--
23	Metropolitan Riverside County 1	4144	123	123	0	69(56.1)	52.0	334	98.7	58.4	4(1.2)	21.0	59	173	96.7	0.02	0.02	10.3	0
23	Metropolitan Riverside County 2	4146	--	--	--	--	--	110	95.0	41.0	1(0.9)	18.0	60	125	75.8	0.01	0.01	10.3	0
23	Mira Loma	5212	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
24	Perris Valley	4149	60	80	0	19(31.7)	39.2	--	--	--	--	--	--	--	--	--	--	--	--
25	Lake Elsinore	4158	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
29	Banning Airport	4164	58	76	0	2(3.4)	26.6	--	--	--	--	--	--	--	--	--	--	--	--
30	Coachella Valley 1**	4137	59	66	0	2(3.4)	25.9	83*	26.2*	25.0*	0*	8.4*	--	--	--	--	--	--	--
30	Coachella Valley 2**	4157	115	106	0	39(34.2)	45.7	104	44.4	25.0	0	10.5	--	--	--	--	--	--	--
	SAN BERNARDINO COUNTY																		
32	Northwest San Bernardino Valley	5175	--	--	--	--	--	--	--	--	--	--	57	94	53.4	0.02	0.02	8.4	0
33	Southwest San Bernardino Valley	5817	60	74	0	19(31.7)	40.8	110	87.8	49.6	1(0.9)	18.8	--	--	--	--	--	--	--
34	Central San Bernardino Valley 1	5197	60	108	0	29(48.3)	50.0	109	96.8	48.2	1(0.9)	18.9	61	295	100.2	--	--	10.4	0
34	Central San Bernardino Valley 2	5203	60	72	0	23(38.3)	42.3	109	106.3	43.4	1(0.9)	17.4	60	175	87.1	0.02	0.01	10.9	0
35	East San Bernardino Valley	5204	58	61	0	12(20.7)	33.2	--	--	--	--	--	--	--	--	--	--	--	--
37	Central San Bernardino Mountains	5181	56	49	0	0	25.8	--	--	--	--	--	--	--	--	--	--	--	--
38	East San Bernardino Mountains	5818	--	--	--	--	--	51	38.8	38.8	0	12.1	--	--	--	--	--	--	--
	DISTRICT MAXIMUM			131	0	69	52.0		132.7	58.4	4	21.0		295	100.2	0.03	0.03	17.3	0
	SOUTH COAST AIR BASIN			131	0	89	52.0		132.7	58.4	6	21.0		295	100.2	0.03	0.03	17.3	0

µg/m³ - Micrograms per cubic meter of air. AAM - Annual Arithmetic Mean AGM – Annual Geometric Mean -- - Pollutant not monitored.

* Less than 12 full months of data. May not be representative. ** Salton Sea Air Basin.

f) - PM10 samples were collected every 6 days at all sites except for Station Numbers 4144 and 4157 where samples were collected every 3 days.

g) - PM2.5 samples were collected every 3 days at all sites except for the following sites: Station Numbers 060, 072, 077, 087, 3176, and 4144 where samples were taken every day, and Station Number 5818 where samples were taken every 6 days.

h) - Total suspended particulates, lead, and sulfate were determined from samples collected every 6 days by the high volume sampler method, on glass fiber filter media.

i) - Federal PM10 standard is annual average (AAM) > 50 µg/m³. State standard is annual average (AAM) > 20 µg/m³ (changed from AGM > 30 µg/m³, effective July 5, 2003).

j) - Federal PM2.5 standard is annual average (AAM) > 15 µg/m³. State standard is annual average (AAM) > 12 µg/m³ (state standard was established on July 5, 2003).

k) - Federal lead standard is quarterly average > 1.5 µg/m³; and state standard is monthly average ≥ 1.5 µg/m³. No location exceeded lead standards. Maximum monthly and quarterly lead concentrations at special monitoring sites immediately downwind of stationary lead sources were 0.44 µg/m³ and 0.34 µg/m³, respectively, both recorded at Central Los Angeles.

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2006 AIR QUALITY
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

2006

Source/Receptor Area No.	Location	Station No.	Carbon Monoxide a) No. Days of Data	Carbon Monoxide Max. Conc. in ppm 1-hour	Carbon Monoxide Max Conc. in ppm 8-hour	Ozone b) No. Days of Data	Ozone Max. Conc. in ppm 1-hour	Ozone Max. Conc. in ppm 8-hour	Ozone Fourth High Conc. ppm 8-hour	No. Days Standard Exceeded: Health Advisory ≥ 0.15 ppm 1-hour	Federal > 0.12 ppm 1-hour	Federal > 0.08 ppm 8-hour	State > 0.09 ppm 1-hour	State > 0.07 ppm 8-hour	Nitrogen Dioxide c) No. Days of Data	Max Conc. in ppm 1-hour	Max Conc. in ppm 24-hour	Annual Average AAM Conc. ppm	Sulfur Dioxide d) No. Days of Data	Max. Conc. in ppm 1-hour	Max. Conc. in ppm 24-hour	Annual Average AAM Conc. ppm
LOS ANGELES COUNTY																						
1	Central LA	087	362	3	2.6	362	0.11	0.079	0.077	0	0	0	8	4	360	0.11	0.06	0.0288	365	0.03	0.006	0.0019
2	Northwest Coastal LA County	091	365	3	2.0	365	0.10	0.074	0.069	0	0	0	3	0	365	0.08	0.05	0.0173	--	--	--	--
3	Southwest Coastal LA County	820	363	3	2.3	360	0.08	0.066	0.062	0	0	0	0	0	351	0.10	0.05	0.0155	363	0.02	0.006	0.0020
4	South Coastal LA County 1	072	360	4	3.4	364	0.08	0.058	0.058	0	0	0	0	0	357	0.10	0.05	0.0215	364	0.03	0.010	0.0012
4	South Coastal LA County 2	077	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
6	West San Fernando Valley	074	365	5	3.4	361	0.16	0.108	0.105	1	6	17	32	39	363	0.07	0.04	0.0174	--	--	--	--
7	East San Fernando Valley	069	365	4	3.5	365	0.17	0.128	0.099	2	6	12	25	23	365	0.10	0.05	0.0274	360	0.01	0.004	0.0006
8	West San Gabriel Valley	088	360	4	2.8	365	0.15	0.117	0.095	1	5	7	25	24	365	0.12	0.06	0.0245	--	--	--	--
9	East San Gabriel Valley 1	060	365	2	1.7	364	0.17	0.120	0.091	2	7	10	23	19	365	0.11	0.07	0.0258	--	--	--	--
9	East San Gabriel Valley 2	591	363	2	2.0	363	0.18	0.128	0.107	2	10	15	37	31	362	0.10	0.06	0.0206	--	--	--	--
10	Pomona/Walnut Valley	075	365	3	2.1	365	0.15	0.128	0.109	2	9	16	32	30	365	0.10	0.06	0.0307	--	--	--	--
11	South San Gabriel Valley	085	232*	3*	2.7*	250*	0.13*	0.095*	0.080*	0*	1*	3*	9*	5*	204*	0.10*	0.06*	0.0283*	--	--	--	--
12	South Central LA County	084	365	8	6.4	365	0.09	0.066	0.064	0	0	0	0	0	363	0.14	0.08	0.0306	--	--	--	--
13	Santa Clarita Valley	090	363	2	1.3	359	0.16	0.120	0.112	1	20	40	62	64	359	0.08	0.04	0.0184	--	--	--	--
ORANGE COUNTY																						
16	North Orange County	3177	362	6	3.0	362	0.15	0.114	0.092	1	3	4	8	9	361	0.09	0.05	0.0224	--	--	--	--
17	Central Orange County	3176	365	5	3.0	365	0.11	0.088	0.072	0	0	1	5	3	343	0.11	0.06	0.0197	--	--	--	--
18	North Coastal Orange County	3195	365	4	3.0	365	0.07	0.064	0.062	0	0	0	0	0	361	0.10	0.05	0.0145	353	0.01	0.004	0.0013
19	Saddleback Valley	3812	365	2	1.8	356	0.12	0.105	0.092	0	0	6	13	17	--	--	--	--	--	--	--	--
RIVERSIDE COUNTY																						
22	Norco/Corona	4155	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
23	Metropolitan Riverside County 1	4144	365	3	2.1	365	0.15	0.116	0.113	1	8	30	45	59	365	0.08	0.05	0.0199	365	0.01	0.004	0.0013
23	Metropolitan Riverside County 2	4146	365	4	2.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
23	Mira Loma	5214	364	4	2.7	364	0.16	0.119	0.107	1	4	25	39	48	332	0.08	0.05	0.0194	--	--	--	--
24	Perris Valley	4149	--	--	--	351	0.17	0.122	0.114	3	12	53	76	84	--	--	--	--	--	--	--	--
25	Lake Elsinore	4158	362	1	1.0	362	0.14	0.109	0.102	0	3	24	40	58	352	0.07	0.05	0.0151	--	--	--	--
29	Banning Airport	4164	--	--	--	357	0.14	0.115	0.104	0	8	44	57	78	355	0.11	0.04	0.0161	--	--	--	--
30	Coachella Valley 1**	4137	365	2	1.0	361	0.13	0.109	0.101	0	2	23	37	67	359	0.09	0.05	0.0103	--	--	--	--
30	Coachella Valley 2**	4157	--	--	--	364	0.10	0.089	0.087	0	0	7	4	29	--	--	--	--	--	--	--	--
SAN BERNARDINO COUNTY																						
32	Northwest San Bernardino Valley	5175	360	3	1.8	365	0.17	0.130	0.114	2	14	25	50	54	337	0.10	0.07	0.0310	--	--	--	--
33	Southwest San Bernardino Valley	5817	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
34	Central San Bernardino Valley 1	5197	365	3	2.0	361	0.16	0.123	0.116	1	12	29	47	49	362	0.09	0.06	0.0270	365	0.01	0.003	0.0019
34	Central San Bernardino Valley 2	5203	364	3	2.3	362	0.15	0.127	0.119	3	10	29	52	57	362	0.09	0.05	0.0252	--	--	--	--
35	East San Bernardino Valley	5204	--	--	--	365	0.16	0.135	0.125	5	11	36	60	64	--	--	--	--	--	--	--	--
37	Central San Bernardino Mountains	5181	--	--	--	365	0.16	0.142	0.112	2	9	59	71	96	--	--	--	--	--	--	--	--
38	East San Bernardino Mountains	5818	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
DISTRICT MAXIMUM				8	6.4		0.18	0.142	0.125	5	20	59	76	96		0.14	0.08	0.0310		0.03	0.010	0.0020
SOUTH COAST AIR BASIN				8	6.4		0.18	0.142	0.125	10	35	86	102	121		0.14	0.08	0.0310		0.03	0.010	0.0020

ppm - Parts Per Million parts of air, by volume. AAM = Annual Arithmetic Mean -- - Pollutant not monitored.

* Less than 12 full months of data. May not be representative. ** Salton Sea Air Basin.

a) - The federal 8-hour standard (8-hour average CO > 9 ppm) and state 8-hour standard (8-hour average CO > 9.0 ppm) were not exceeded. The federal and state 1-hour standards (35 ppm and 20 ppm) were not exceeded, either.

b) - The federal 1-hour ozone standard was revoked and replaced by the 8-hour average ozone standard effective June 15, 2005. The 8-hour average California ozone standard of 0.07 ppm was established effective May 17, 2006.

c) - The state standard is 1-hour average NO_2 > 0.25 ppm. The federal standard is annual arithmetic mean NO_2 > 0.0534 ppm. Air Resources Board has approved to lower the NO_2 1-hour standard to 0.18 ppm and establish a new annual standard of 0.030 ppm. The revisions are expected to become effective later in 2007.

d) - The state standards are 1-hour average SO_2 > 0.25 ppm and 24-hour average SO_2 > 0.04 ppm. The federal standards are annual arithmetic mean SO_2 > 0.03 ppm, 24-hour average > 0.14 ppm, and 3-hour average > 0.50 ppm. The federal and state SO_2 standards were not exceeded.

South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765-4182
www.aqmd.gov

The map showing the locations of source/receptor areas can be accessed via the Internet at http://www.aqmd.gov/telemweb/areamap.aspx. Locations of source/receptor areas are shown on the "South Coast Air Quality Management District Air Monitoring Areas" map available free of charge from SCAQMD Public Information.

2006 AIR QUALITY
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

2006

No.	Source/Receptor Area Location	Station No.	Suspended Particulates PM10 e) No. Days of Data	PM10 Max. Conc. in µg/m³ 24-hour	PM10 No. (%) Samples Exceeding Standard Federal > 150 µg/m³ 24-hour	PM10 No. (%) Samples Exceeding Standard State > 50 µg/m³ 24-hour	PM10 Annual Average AAM h) Conc. µg/m³	Fine Particulates PM2.5 f) No. Days of Data	PM2.5 Max. Conc. in µg/m³ 24-hour	PM2.5 98th Percentile Conc. in µg/m³ 24-hour	PM2.5 No. (%) Samples Exceeding Standard Federal i) > 35 µg/m³ 24-hour	PM2.5 No. (%) Samples Exceeding Standard Federal i) > 65 µg/m³ 24-hour	PM2.5 Annual Averages AAM j) Conc. µg/m³	Particulates TSP g) No. Days of Data	TSP Max. Conc. in µg/m³ 24-hour	TSP Annual Average AAM Conc. µg/m³	Lead g) Max. Monthly Average Conc. k) µg/m³	Lead Max. Quarterly Average Conc. k) µg/m³	Sulfate g) Max. Conc. in µg/m³ 24-hour	Sulfate No. (%) Samples Exceeding Standard State ≥ 25 µg/m³ 24-hour
	LOS ANGELES COUNTY																			
1	Central LA	087	59	59	0	3(5.1)	30.3	330	56.2	38.9	11(3.3)	0	15.6	59	109	63.3	0.02	0.01	18.2	0
2	Northwest Coastal LA County	091	--	--	--	--	--	--	--	--	--	--	--	56	76	40.2	--	--	12.2	0
3	Southwest Coastal LA County	820	51	45	0	0	26.5	--	--	--	--	--	--	56	84	43.1	0.01	0.01	13.6	0
4	South Coastal LA County 1	072	61	78	0	6(9.8)	31.1	290*	58.5*	34.9*	5(1.7)*	0*	14.2*	62	157	62.9	0.01	0.01	17.8	0
4	South Coastal LA County 2	077	58	117	0	19(32.7)	45.0	320	53.6	35.3	6(1.9)	0	14.5	59	192	71.1	0.01	0.01	18.8	0
6	West San Fernando Valley	074	--	--	--	--	--	92	44.1	32.0	1(1.1)	0	12.9	--	--	--	--	--	--	--
7	East San Fernando Valley	069	54	71	0	10(18.5)	35.6	104	50.7	43.4	6(5.8)	0	16.6	--	--	--	--	--	--	--
8	West San Gabriel Valley	088	--	--	--	--	--	113	45.9	32.1	1(0.9)	0	13.4	60	123	42.8	--	--	28.7	1(1.7)
9	East San Gabriel Valley 1	060	58	81	0	7(12.1)	31.9	278*	52.8*	38.5*	8(2.9)*	0*	15.5*	59	142	68.4	--	--	20.8	0
9	East San Gabriel Valley 2	591	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10	Pomona/Walnut Valley	075	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
11	South San Gabriel Valley	085	--	--	--	--	--	116	72.2	43.1	7(6)	1(0.9)	16.7	58	768	79.3	0.03	0.02	28.6	1(1.7)
12	South Central LA County	084	--	--	--	--	--	107	55.0	44.5	4(3.7)	0	16.7	58	147	68.4	0.02	0.02	24.1	0
13	Santa Clarita Valley	090	58	53	0	1(1.7)	23.4	--	--	--	--	--	--	--	--	--	--	--	--	--
	ORANGE COUNTY																			
16	North Orange County	3177	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17	Central Orange County	3176	56	104	0	7(12.5)	33.4	330	56.2	40.5	8(2.4)	0	14.1	--	--	--	--	--	--	--
18	North Coastal Orange County	3195	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
19	Saddleback Valley	3812	50	57	0	1(2.0)	22.8	106	47.0	25.7	1(0.9)	0	11.0	--	--	--	--	--	--	--
	RIVERSIDE COUNTY																			
22	Norco/Corona	4155	57	74	0	10(17.5)	36.5	--	--	--	--	--	--	--	--	--	--	--	--	--
23	Metropolitan Riverside County 1	4144	118	109	0	71(60.2)	54.4	300	68.5	53.7	32(10.7)	1(0.3)	19.0	59	169	91.2	0.01	0.01	10.8	0
23	Metropolitan Riverside County 2	4146	--	--	--	--	--	105	55.3	47.7	9(8.6)	0	17.0	59	131	72.9	0.01	0.01	9.9	0
23	Mira Loma	5214	59	124	0	41(69.5)	64.0	113	63.0	52.5	14(12.4)	0	20.6	--	--	--	--	--	--	--
24	Perris Valley	4149	54	125	0	19(35.2)	45.0	--	--	--	--	--	--	--	--	--	--	--	--	--
25	Lake Elsinore	4158	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
29	Banning Airport	4164	55	75	0	8(14.6)	31.1	--	--	--	--	--	--	--	--	--	--	--	--	--
30	Coachella Valley 1**	4137	57	73+	0+	2(3.5)+	24.5+	111	24.8	15.9	0	0	7.7	--	--	--	--	--	--	--
30	Coachella Valley 2**	4157	115	122+	0+	57(49.6)+	52.7+	107	24.3	19.1	0	0	9.5	--	--	--	--	--	--	--
	SAN BERNARDINO COUNTY																			
32	Northwest San Bernardino Valley	5175	--	--	--	--	--	--	--	--	--	--	--	58	105	54.6	0.01	0.01	9.1	0
33	Southwest San Bernardino Valley	5817	62	78	0	17(27.4)	42.3	107	53.7	41.5	7(6.5)	0	18.5	--	--	--	--	--	--	--
34	Central San Bernardino Valley 1	5197	60	142	0	31(51.7)	53.5	112	52.6	43.8	7(6.3)	0	17.6	59	190	101.0	--	--	10.3	0
34	Central San Bernardino Valley 2	5203	57	92	0	24(42.1)	46.0	102	55.0	48.4	8(7.8)	0	17.8	54	174	87.0	0.02	0.01	11.0	0
35	East San Bernardino Valley	5204	60	103	0	12(20.0)	36.2	--	--	--	--	--	--	--	--	--	--	--	--	--
37	Central San Bernardino Mountains	5181	58	63	0	1(1.7)	26.2	--	--	--	--	--	--	--	--	--	--	--	--	--
38	East San Bernardino Mountains	5818	--	--	--	--	--	42*	40.1*	40.1*	1(2.4)*	0*	11.2*	--	--	--	--	--	--	--
	DISTRICT MAXIMUM			142+	0+	71	64.0		72.2	53.7	32	1	20.6		768	101.0	0.03	0.02	28.7	1
	SOUTH COAST AIR BASIN			142+	0+	75	64.0		72.2	53.7	32	1	20.6		768	101.0	0.03	0.02	28.7	1

µg/m³ - Micrograms per cubic meter of air AAM - Annual Arithmetic Mean -- - Pollutant not monitored

* Less than 12 full months of data. May not be representative. ** Salton Sea Air Basin.

e) - PM10 samples were collected every 6 days at all sites except for Station Numbers 4144 and 4157 where samples were collected every 3 days.

f) - PM2.5 samples were collected every 3 days at all sites except for the following sites: Station Numbers 060, 072, 077, 087, 3176, and 4144 where samples were taken every day, and Station Number 5818 where samples were taken every 6 days.

g) - Total suspended particulates, lead, and sulfate were determined from samples collected every 6 days by the high volume sampler method, on glass fiber filter media.

h) - Federal annual PM10 standard (AAM > 50 µg/m³) was revoked effective December 17, 2006. State standard is annual average (AAM) > 20 µg/m³.

i) - U.S. EPA has revised the federal 24-hour PM2.5 standard from 65 µg/m³ to 35 µg/m³; effective December 17, 2006.

j) - Federal PM2.5 standard is annual average (AAM) > 15 µg/m³. State standard is annual average (AAM) > 12 µg/m³.

k) - Federal lead standard is quarterly average > 1.5 µg/m³; and state standard is monthly average ≥ 1.5 µg/m³. No location exceeded lead standards. Maximum monthly and quarterly lead concentrations at special monitoring sites immediately downwind of stationary lead sources were 0.24 µg/m³ and 0.22 µg/m³, respectively, both recorded at Central Los Angeles.

\+ - The data for the samples collected on a high-wind day (July 16, 2006) at Palm Springs and Indio (226 µg/m³ and 313 µg/m³, respectively) were excluded in accordance with EPA's Natural Events Policy.

2007 AIR QUALITY
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

2007

Source/Receptor Area No.	Location	Station No. State Code	Station No. District Code	Carbon Monoxide a) No. Days of Data	CO Max. Conc. in ppm 1-hour	CO Max Conc. in ppm 8-hour	Ozone No. Days of Data	O3 Max. Conc. in ppm 1-hour	O3 Max. Conc. in ppm 8-hour	O3 Fourth High Conc. ppm 8-hour	No. Days Standard Exceeded: Health Advisory ≥ 0.15 ppm 1-hour	Federal b) > 0.12 ppm 1-hour	Federal b) > 0.08 ppm 8-hour	Federal b) > 0.075 ppm 8-hour	State c) > 0.09 ppm 1-hour	State c) > 0.070 ppm 8-hour	Nitrogen Dioxide d) No. Days of Data	NO2 Max Conc. in ppm 1-hour	NO2 Annual Average AAM Conc. ppm	Sulfur Dioxide e) No. Days of Data	SO2 Max. Conc. in ppm 1-hour	SO2 Max. Conc. in ppm 24-hour	SO2 Annual Average AAM Conc. ppm
	LOS ANGELES COUNTY																						
1	Central LA	70087	087	359	3	2.2	355	0.115	0.102	0.072	0	0	2	3	3	6	360	0.10	0.0299	351	0.01	0.003	0.0009
2	Northwest Coastal LA County	70091	091	365	3	1.9	360	0.117	0.087	0.067	0	0	1	2	2	2	353	0.08	0.0200	--	--	--	--
3	Southwest Coastal LA County	70111	820	361	3	2.4	361	0.087	0.074	0.066	0	0	0	0	0	1	331*	0.08	0.0140	361	0.02	0.009	0.0028
4	South Coastal LA County 1	70072	072	347*	3	2.6	365	0.099	0.073	0.056	0	0	0	0	1	1	365	0.11	0.0207	365	0.11	0.011	0.0027
4	South Coastal LA County 2	70110	077	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
6	West San Fernando Valley	70074	074	358	4	2.8	358	0.129	0.104	0.092	0	1	8	28	21	43	358	0.08	0.0186	--	--	--	--
7	East San Fernando Valley	70069	069	365	4	2.8	365	0.116	0.096	0.088	0	0	6	13	13	19	363	0.09	0.0289	365	0.01	0.003	0.0010
8	West San Gabriel Valley	70088	088	365	3	2.4	365	0.149	0.100	0.089	0	3	6	11	13	21	365	0.09	0.0246	--	--	--	--
9	East San Gabriel Valley 1	70060	060	365	3	2.0	365	0.158	0.112	0.096	1	3	13	20	22	28	365	0.12	0.0253	--	--	--	--
9	East San Gabriel Valley 2	70591	591	365	2	2.0	364	0.147	0.116	0.104	0	3	14	26	25	40	365	0.11	0.0227	--	--	--	--
10	Pomona/Walnut Valley	70075	075	365	3	2.1	365	0.153	0.108	0.102	1	2	10	18	19	25	365	0.10	0.0318	--	--	--	--
11	South San Gabriel Valley	70185	085	365	5	2.9	364	0.135	0.100	0.079	0	2	2	5	6	9	361	0.11	0.0249	--	--	--	--
12	South Central LA County	70084	084	365	8	5.1	365	0.102	0.077	0.056	0	0	0	1	1	2	365	0.10	0.0291	--	--	--	--
13	Santa Clarita Valley	70090	090	361	2	1.2	357	0.135	0.110	0.101	0	2	16	44	31	64	339*	0.08	0.0196	--	--	--	--
	ORANGE COUNTY																						
16	North Orange County	30177	3177	360	6	3.3	365	0.152	0.107	0.082	1	1	2	8	7	9	365	0.08	0.0219	--	--	--	--
17	Central Orange County	30178	3176	346*	4	2.9	365	0.127	0.099	0.073	0	1	1	1	2	7	359	0.10	0.0208	--	--	--	--
18	North Coastal Orange County	30195	3195	362	5	3.1	362	0.082	0.072	0.065	0	0	0	0	0	2	362	0.07	0.0132	358	0.01	0.004	0.0010
19	Saddleback Valley	30002	3812	364	3	2.1	365	0.108	0.089	0.080	0	0	2	5	5	10	--	--	--	--	--	--	
	RIVERSIDE COUNTY																						
22	Norco/Corona	33155	4155	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
23	Metropolitan Riverside County 1	33144	4144	364	4	2.9	365	0.131	0.111	0.099	0	2	15	46	31	69	364	0.07	0.0206	323*	0.02	0.002	0.0017
23	Metropolitan Riverside County 2	33146	4146	365	4	2.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
23	Mira Loma	33165	5214	359	3	2.1	360	0.118	0.104	0.092	0	0	10	23	16	48	349*	0.07	0.0181	--	--	--	--
24	Perris Valley	33149	4149	--	--	--	365	0.139	0.116	0.103	0	4	37	73	66	88	--	--	--	--	--	--	--
25	Lake Elsinore	33158	4158	365	2	2.3	359	0.130	0.108	0.097	0	3	19	35	26	55	358	0.06	0.0174	--	--	--	--
29	Banning Airport	33164	4164	--	--	--	365	0.129	0.113	0.095	0	1	12	43	28	63	363	0.08	0.0147	--	--	--	--
30	Coachella Valley 1**	33137	4137	365	2	1.0	365	0.126	0.101	0.097	0	1	20	58	29	83	365	0.06	0.0103	--	--	--	--
30	Coachella Valley 2**	33155	4157	--	--	--	365	0.106	0.094	0.087	0	0	6	29	8	48	--	--	--	--	--	--	--
	SAN BERNARDINO COUNTY																						
32	Northwest San Bernardino Valley	36175	5175	365	2	1.6	365	0.145	0.115	0.112	0	7	18	35	32	55	327*	0.10	0.0276	--	--	--	--
33	Southwest San Bernardino Valley	36025	5817	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
34	Central San Bernardino Valley 1	36197	5197	359	3	1.8	359	0.144	0.122	0.112	0	9	19	43	40	60	358	0.09	0.0239	359	0.01	0.004	0.0019
34	Central San Bernardino Valley 2	36203	5203	365	4	2.3	365	0.153	0.121	0.117	1	8	24	51	48	74	351	0.08	0.0245	--	--	--	--
35	East San Bernardino Valley	36204	5204	--	--	--	365	0.149	0.124	0.112	0	7	25	58	54	79	--	--	--	--	--	--	--
37	Central San Bernardino Mountains	36181	5181	--	--	--	365	0.171	0.137	0.126	4	13	59	93	67	115	--	--	--	--	--	--	--
38	East San Bernardino Mountains	36001	5818	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	DISTRICT MAXIMUM				8	5.1		0.171	0.137	0.126	4	13	59	93	67	115		0.12	0.0318		0.11	0.011	0.0028
	SOUTH COAST AIR BASIN				8	5.1		0.171	0.137	0.126	5	18	79	108	96	128		0.12	0.0318		0.11	0.011	0.0028

ppm - Parts Per Million parts of air, by volume. AAM = Annual Arithmetic Mean -- - Pollutant not monitored.

* Less than 12 full months of data; may not be representative. ** Salton Sea Air Basin.

a) - The federal 8-hour standard (8-hour average CO > 9 ppm) and state 8-hour standard (8-hour average CO > 9.0 ppm) were not exceeded. The federal and state 1-hour standards (35 ppm and 20 ppm) were not exceeded, either.

b) - The federal 1-hour ozone standard was revoked and replaced by the 8-hour average ozone standard effective June 15, 2005. U.S. EPA has revised the federal 8-hour ozone standard from 0.084 ppm to 0.075 ppm, effective May 27, 2008.

c) - The 8-hour average California ozone standard of 0.070 ppm was established effective May 17, 2006.

d) - The federal standard is annual arithmetic mean NO_2 > 0.0534 ppm. California Air Resources Board has revised the NO_2 1-hour state standard from 0.25 ppm to 0.18 ppm and has established a new annual standard of 0.030 ppm, effective March 20, 2008.

e) - The state standards are 1-hour average SO_2 > 0.25 ppm and 24-hour average SO_2 > 0.04 ppm. The federal standards are annual arithmetic mean SO_2 > 0.03 ppm, 24-hour average > 0.14 ppm, and 3-hour average > 0.50 ppm. The federal and state SO_2 standards were not exceeded.

South Coast
Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765-4182
www.aqmd.gov

The map showing the locations of source/receptor areas can be accessed via the Internet at http://www.aqmd.gov/telemweb/areamap.aspx. Locations of source/receptor areas are shown on the "South Coast Air Quality Management District Air Monitoring Areas" map available free of charge from SCAQMD Public Information.

Due to technical difficulties, lead and sulfate data are not available and will be provided at a later time.

2007 AIR QUALITY
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

2007

Source/Receptor Area No.	Location	Station No. State Code	Station No. District Code	Suspended Particulates PM10 f) No. Days of Data	PM10 Max. Conc. in µg/m³ 24-hour	PM10 No. (%) Samples Exceeding Standards: Federal > 150 µg/m³ 24-hour	PM10 No. (%) Samples Exceeding Standards: State > 50 µg/m³ 24-hour	PM10 Annual Average Conc. i) (AAM) µg/m³	Fine Particulates PM2.5 g) No. Days of Data	PM2.5 Max. Conc. in µg/m³ 24-hour	PM2.5 98th Percentile Conc. in µg/m³ 24-hour	PM2.5 No. (%) Samples Exceeding Federal Standard: Current > 35 j) µg/m³ 24-hour	PM2.5 No. (%) Samples Exceeding Federal Standard: Old > 65 j) µg/m³ 24-hour	PM2.5 Annual Average Conc. k) (AAM) µg/m³	Particulates h) No. Days of Data	Particulates Max. Conc. in µg/m³ 24-hour	Particulates Annual Average Conc. (AAM) µg/m³	Lead h) Max. Monthly Average Conc. l) µg/m³	Lead h) Max. Quarterly Average Conc. l) µg/m³	Sulfate h) Max. Conc. l) in µg/m³ 24-hour	Sulfate h) %Samples Exceeding State Standard ≥ 25 µg/m³ 24-hour
LOS ANGELES COUNTY																					
1	Central LA	70087	087	57	78	0	5(9)	33.3	324	64.2	51.2	20(0.6)	0	16.8	58	194	73.5				
2	Northwest Coastal LA County	70091	091	--	--	--	--	--	--	--	--	--	--	--	57	180	57.6				
3	Southwest Coastal LA County	70111	820	56	96	0	2(4)	27.7	--	--	--	--	--	--	55	286	51.8				
4	South Coastal LA County 1	70072	072	58	75+	0+	5(9)+	30.2+	332	82.9	40.8	12(3.6)	1(0.3)	14.6	59	732	76.5				
4	South Coastal LA County 2	70110	077	57	123+	0+	17(30)+	41.7+	326	68.0	33.7	6(1.8)	1(0.3)	13.7	58	694	79.4				
6	West San Fernando Valley	70074	074	--	--	--	--	--	95	43.3	33.4	1(1.1)	0	13.1	--	--	--				
7	East San Fernando Valley	70069	069	55	109	0	11(20)	40.0	98	56.5	47.7	9(9.2)	0	16.8	--	--	--				
8	West San Gabriel Valley	70088	088	--	--	--	--	--	108	68.9	45.4	3(2.8)	1(0.9)	14.3	56	123	46.3				
9	East San Gabriel Valley 1	70060	060	57	83+	0+	11(19)+	35.6+	292*	63.8	49.3	19(6.5)	0	15.9	58	243	77.8				
9	East San Gabriel Valley 2	70591	591	--	--	--	--	--	--	--	--	--	--	--	--	--	--				
10	Pomona/Walnut Valley	70075	075	--	--	--	--	--	--	--	--	--	--	--	--	--	--				
11	South San Gabriel Valley	70185	085	--	--	--	--	--	101	63.6	49.5	5(5.0)	0	16.7	55	196	76.0				
12	South Central LA County	70084	084	--	--	--	--	--	106	49.0	46.1	4(3.8)	0	15.9	59	327	78.8				
13	Santa Clarita Valley	70090	090	58	131+	0+	5(9)+	29.9+	--	--	--	--	--	--	--	--	--				
ORANGE COUNTY																					
16	North Orange County	30177	3177	--	--	--	--	--	--	--	--	--	--	--	--	--	--				
17	Central Orange County	30178	3176	59	75+	0+	5(9)+	31.0+	336	79.4	46.5	14(4.2)	1(0.3)	14.5	--	--	--				
18	North Coastal Orange County	30195	3195	--	--	--	--	--	--	--	--	--	--	--	--	--	--				
19	Saddleback Valley	30002	3812	58	74	0	3(5)	23.0	98	46.9	35.0	2(2.0)	0	11.3	--	--	--				
RIVERSIDE COUNTY																					
22	Norco/Corona	33155	4155	59	93+	0+	10(17)+	39.6+	--	--	--	--	--	--	--	--	--				
23	Metropolitan Riverside County 1	33144	4144	116	118+	0+	66(51)+	54.7+	295*	75.7	54.3	33(11.2)	3(1.0)	19.1	57	237	111.0				
23	Metropolitan Riverside County 2	33146	4146	--	--	--	--	--	101	68.6	57.3	8(7.9)	1(1.0)	18.1	60	674	88.9				
23	Mira Loma	33165	5214	56	142	0	41(73)	68.5	110	69.7	60.1	13(11.8)	1(0.9)	21.0	--	--	--				
24	Perris Valley	33149	4149	59	120+	0+	32(54)+	54.8+	--	--	--	--	--	--	--	--	--				
25	Lake Elsinore	33158	4158	--	--	--	--	--	--	--	--	--	--	--	--	--	--				
29	Banning Airport	33164	4164	49*	78	0	7(14)	33.3	--	--	--	--	--	--	--	--	--				
30	Coachella Valley 1**	33137	4137	55	83	0	6(11)	30.5	104	32.5	20.5	0	0	8.7	--	--	--				
30	Coachella Valley 2**	33155	4157	87*	146+	0+	51(59)+	53.5+	97	26.8	26.5	0	0	9.8	--	--	--				
SAN BERNARDINO COUNTY																					
32	Northwest San Bernardino Valley	36175	5175	--	--	--	--	--	--	--	--	--	--	--	60	206	63.5				
33	Southwest San Bernardino Valley	36025	5817	58	115+	0+	14(24)+	43.4+	102	72.8	53.0	6(5.9)	1(1.0)	17.9	--	--	--				
34	Central San Bernardino Valley 1	36197	5197	58	111+	0+	33(57)+	54.9+	107	77.5	64.9	10(9.3)	2(1.9)	19.0	58	242	96.2				
34	Central San Bernardino Valley 2	36203	5203	58	136+	0+	28(48)+	51.4+	99	72.1	68.4	11(11.1)	3(3.0)	18.3	59	536	106.9				
35	East San Bernardino Valley	36204	5204	60	97	0	19(32)	39.7	--	--	--	--	--	--	--	--	--				
37	Central San Bernardino Mountains	36181	5181	54	89	0	2(4)	27.2	--	--	--	--	--	--	--	--	--				
38	East San Bernardino Mountains	36001	5818	--	--	--	--	--	54	45.4	34.0	1(1.9)	0	10.4	--	--	--				
	DISTRICT MAXIMUM				146+	0+	66+	68.5+		82.9	68.4	33	3	21.0		732	111.0				
	SOUTH COAST AIR BASIN				142+	0+	79+	68.5+		82.9	68.4	48	8	21.0		732	111.0				

µg/m³ - Micrograms per cubic meter of air. AAM = Annual Arithmetic Mean -- - Pollutant not monitored.

* Less than 12 full months of data; may not be representative. ** Salton Sea Air Basin.

f) - PM10 samples were collected every 6 days at all sites except for Station Numbers 4144 and 4157 where samples were collected every 3 days.

g) - PM2.5 samples were collected every 3 days at all sites except for the following sites: Station Numbers 060, 072, 077, 087, 3176, and 4144 where samples were taken every day, and Station Number 5818 where samples were taken every 6 days.

h) - Total suspended particulates, lead, and sulfate were determined from samples collected every 6 days by the high volume sampler method, on glass fiber filter media.

i) - Federal annual PM10 standard (AAM > 50 µg/m³) was revoked effective December 17, 2006. State standard is annual average (AAM) > 20 µg/m³.

j) - U.S. EPA has revised the federal 24-hour PM2.5 standard from 65 µg/m³ to 35 µg/m³; effective December 17, 2006.

k) - Federal PM2.5 standard is annual average (AAM) > 15 µg/m³. State standard is annual average (AAM) > 12 µg/m³.

l) - Federal lead standard is quarterly average > 1.5 µg/m³; and state standard is monthly average ≥ 1.5 µg/m³. Lead and sulfate data analysis is incomplete and data is not available at this time.

\+ - The following PM10 data samples were excluded from compliance consideration in accordance with the EPA Exceptional Event Regulation: 210 and 157 ug/m3 on March 22 and April 6, respectively, at Coachella Valley 2 (high wind events); 167 ug/m3 on April 12 at Perris Valley (high wind event); 165 and 155 ug/m3 on July 5 at East San Gabriel 1 and Central San Bernardino Valley 1, respectively (fireworks displays); and high concentration throughout the District on October 21, with a maximum concentration of 559 ug/m3 at Metropolitan Riverside County 1 (high wind and wildfire event).

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APPENDIX C
URBEMIS 2007 VERSION 9.2.4 OUTPUT

11/13/2008 2:02:49 PM

Urbemis 2007 Version 9.2.4

Summary Report for Summer Emissions (Pounds/Day)

File Name: W:\PROJECTS\1222\1222-004\Data\Air\Kroc.urb924

Project Name: Kroc Community Center

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2009 TOTALS (lbs/day unmitigated)	31.95	293.15	140.94	0.02	4.86	12.45	17.30	1.02	11.45	12.47	27,766.35
2009 TOTALS (lbs/day mitigated)	31.95	293.15	140.94	0.02	1.13	12.45	13.58	0.25	11.45	11.69	27,766.35
2010 TOTALS (lbs/day unmitigated)	5.24	47.40	27.33	0.02	0.08	1.92	2.00	0.03	1.76	1.79	6,238.73
2010 TOTALS (lbs/day mitigated)	5.24	47.40	27.33	0.02	0.08	1.92	2.00	0.03	1.76	1.79	6,238.73

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	1.58	1.26	7.17	0.00	0.02	0.02	1,431.58

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	19.92	23.36	207.66	0.22	35.58	6.94	21,367.37

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SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	21.50	24.62	214.83	0.22	35.60	6.96	22,798.95

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Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Unmitigated Emissions (Pounds/Day)

File Name: W:\PROJECTS\1222\1222-004\Data\Air\Kroc.urb924

Project Name: Kroc Community Center

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
Time Slice 1/1/2009-1/30/2009 Active Days: 22	6.49	60.01	23.06	0.00	0.01	2.51	2.52	0.00	2.31	2.31	6,158.86
Demolition 01/01/2009-01/31/2009	6.49	60.01	23.06	0.00	0.01	2.51	2.52	0.00	2.31	2.31	6,158.86
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	6.41	59.85	20.53	0.00	0.00	2.50	2.50	0.00	2.30	2.30	5,878.89
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.08	0.15	2.54	0.00	0.01	0.01	0.02	0.00	0.01	0.01	279.97
Time Slice 2/2/2009-5/29/2009 Active Days: 85	**31.95**	**293.15**	**140.94**	0.01	**4.86**	**12.45**	**17.30**	**1.02**	**11.45**	**12.47**	**27,766.35**
Mass Grading 02/01/2009-05/31/2009	31.95	293.15	140.94	0.01	4.86	12.45	17.30	1.02	11.45	12.47	27,766.35
Mass Grading Dust	0.00	0.00	0.00	0.00	4.80	0.00	4.80	1.00	0.00	1.00	0.00
Mass Grading Off Road Diesel	31.60	292.51	130.23	0.00	0.00	12.42	12.42	0.00	11.42	11.42	26,584.26
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.34	0.64	10.71	0.01	0.06	0.03	0.09	0.02	0.03	0.05	1,182.09
Time Slice 6/1/2009-11/30/2009 Active Days: 131	5.53	50.41	29.06	**0.02**	0.08	2.05	2.12	0.03	1.88	1.91	6,239.11
Building 06/01/2009-11/30/2009	5.53	50.41	29.06	0.02	0.08	2.05	2.12	0.03	1.88	1.91	6,239.11
Building Off Road Diesel	4.96	47.66	15.14	0.00	0.00	1.92	1.92	0.00	1.77	1.77	4,531.62
Building Vendor Trips	0.17	2.01	1.62	0.00	0.01	0.09	0.10	0.00	0.08	0.08	349.38
Building Worker Trips	0.40	0.74	12.30	0.01	0.06	0.04	0.10	0.02	0.03	0.05	1,358.11

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Time Slice 12/1/2009-12/31/2009 Active Days: 23	5.53	50.41	29.06	**0.02**	0.08	2.05	2.12	0.03	1.88	1.91	6,239.11
Building 12/01/2009-05/31/2010	5.53	50.41	29.06	0.02	0.08	2.05	2.12	0.03	1.88	1.91	6,239.11
Building Off Road Diesel	4.96	47.66	15.14	0.00	0.00	1.92	1.92	0.00	1.77	1.77	4,531.62
Building Vendor Trips	0.17	2.01	1.62	0.00	0.01	0.09	0.10	0.00	0.08	0.08	349.38
Building Worker Trips	0.40	0.74	12.30	0.01	0.06	0.04	0.10	0.02	0.03	0.05	1,358.11
Time Slice 1/1/2010-5/31/2010 Active Days: 107	5.24	47.40	27.33	**0.02**	0.08	1.92	2.00	0.03	1.76	1.79	6,238.73
Building 12/01/2009-05/31/2010	5.24	47.40	27.33	0.02	0.08	1.92	2.00	0.03	1.76	1.79	6,238.73
Building Off Road Diesel	4.71	44.88	14.38	0.00	0.00	1.81	1.81	0.00	1.66	1.66	4,531.62
Building Vendor Trips	0.16	1.84	1.51	0.00	0.01	0.08	0.09	0.00	0.07	0.07	349.39
Building Worker Trips	0.36	0.67	11.44	0.01	0.06	0.04	0.10	0.02	0.03	0.05	1,357.71

Phase Assumptions

Phase: Demolition 1/1/2009 - 1/31/2009 - Default Demolition Description

Building Volume Total (cubic feet): 0

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 8 hours per day

1 Excavators (300 hp) operating at a 0.57 load factor for 8 hours per day

1 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day

1 Other Material Handling Equipment (191 hp) operating at a 0.59 load factor for 8 hours per day

1 Rubber Tired Dozers (400 hp) operating at a 0.59 load factor for 1 hours per day

1 Rubber Tired Loaders (250 hp) operating at a 0.54 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 2/1/2009 - 5/31/2009 - Default Mass Site Grading/Excavation Description

Total Acres Disturbed: 19

Maximum Daily Acreage Disturbed: 0.24

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

11/13/2008 2:03:09 PM

On Road Truck Travel (VMT): 0

Off-Road Equipment:

20 Dumpers/Tenders (16 hp) operating at a 0.38 load factor for 8 hours per day

1 Graders (200 hp) operating at a 0.61 load factor for 6 hours per day

1 Other Equipment (500 hp) operating at a 0.62 load factor for 8 hours per day

2 Rubber Tired Dozers (400 hp) operating at a 0.59 load factor for 6 hours per day

1 Rubber Tired Loaders (300 hp) operating at a 0.54 load factor for 8 hours per day

7 Scrapers (500 hp) operating at a 0.72 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

3 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Building Construction 6/1/2009 - 11/30/2009 - Default Building Construction Description

Off-Road Equipment:

1 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 8 hours per day

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

3 Dumpers/Tenders (16 hp) operating at a 0.38 load factor for 8 hours per day

1 Excavators (300 hp) operating at a 0.57 load factor for 8 hours per day

2 Other Equipment (5 hp) operating at a 0.62 load factor for 8 hours per day

1 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 8 hours per day

1 Other Material Handling Equipment (191 hp) operating at a 0.59 load factor for 8 hours per day

1 Rubber Tired Loaders (250 hp) operating at a 0.54 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (100 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Building Construction 12/1/2009 - 5/31/2010 - Default Building Construction Description

Off-Road Equipment:

1 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 8 hours per day

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

3 Dumpers/Tenders (16 hp) operating at a 0.38 load factor for 8 hours per day

1 Excavators (300 hp) operating at a 0.57 load factor for 8 hours per day

2 Other Equipment (5 hp) operating at a 0.62 load factor for 8 hours per day

1 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 8 hours per day

1 Other Material Handling Equipment (191 hp) operating at a 0.59 load factor for 8 hours per day

1 Rubber Tired Loaders (250 hp) operating at a 0.54 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (100 hp) operating at a 0.55 load factor for 8 hours per day

11/13/2008 2:03:09 PM

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

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Urbemis 2007 Version 9.2.4

Detail Report for Summer Operational Unmitigated Emissions (Pounds/Day)

File Name: W:\PROJECTS\1222\1222-004\Data\Air\Kroc.urb924

Project Name: Kroc Community Center

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Day-care center	1.07	1.10	9.80	0.01	1.55	0.30	941.80
Place of worship	0.69	0.81	7.14	0.01	1.26	0.25	754.00
General office building	0.88	1.10	10.06	0.01	1.77	0.34	1,059.52
Recreational facility	17.28	20.35	180.66	0.19	31.00	6.05	18,612.05
TOTALS (lbs/day, unmitigated)	19.92	23.36	207.66	0.22	35.58	6.94	21,367.37

Includes correction for passby trips

Includes the following double counting adjustment for internal trips:

Residential Trip % Reduction: 0.00 Nonresidential Trip % Reduction: 0.00

Analysis Year: 2011 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Day-care center		79.26	1000 sq ft	3.10	245.71	896.00
Place of worship		9.11	1000 sq ft	12.46	113.51	729.68

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Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
General office building		11.01	1000 sq ft	11.40	125.51	1,022.57
Recreational facility		22.88	1000 sq ft	143.58	3,285.11	17,932.05
					3,769.84	20,580.30

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	51.6	0.8	99.0	0.2
Light Truck < 3750 lbs	7.3	2.7	94.6	2.7
Light Truck 3751-5750 lbs	23.0	0.4	99.6	0.0
Med Truck 5751-8500 lbs	10.6	0.9	99.1	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.6	0.0	81.2	18.8
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.5	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.8	64.3	35.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Day-care center				5.0	2.5	92.5
Place of worship				3.0	1.5	95.5
General office building				35.0	17.5	47.5
Recreational facility				5.0	2.5	92.5

Operational Changes to Defaults

11/13/2008 2:09:25 PM

Urbemis 2007 Version 9.2.4

Summary Report for Annual Emissions (Tons/Year)

File Name: W:\PROJECTS\1222\1222-004\Data\Air\Kroc.urb924

Project Name: Kroc Community Center

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2009 TOTALS (tons/year unmitigated)	1.86	17.00	8.48	0.00	0.21	0.71	0.93	0.05	0.66	0.70	1,728.23
2009 TOTALS (tons/year mitigated)	1.86	17.00	8.48	0.00	0.05	0.71	0.77	0.01	0.66	0.67	1,728.23
Percent Reduction	0.00	0.00	0.00	0.00	74.48	0.00	17.07	72.43	0.00	4.70	0.00
2010 TOTALS (tons/year unmitigated)	0.28	2.54	1.46	0.00	0.00	0.10	0.11	0.00	0.09	0.10	333.77
2010 TOTALS (tons/year mitigated)	0.28	2.54	1.46	0.00	0.00	0.10	0.11	0.00	0.09	0.10	333.77
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	0.29	0.24	1.31	0.00	0.00	0.00	261.26

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OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	3.81	4.55	37.76	0.03	6.49	1.26	3,777.64

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	4.10	4.79	39.07	0.03	6.49	1.26	4,038.90

APPENDIX C
CULTURAL RESOURCES TECHNICAL REPORT