Appendix E
Health Risk Assessment

DRAFT
Health Risk Assessment
300 Airport Boulevard Project
Burlingame, California

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EXECUTIVE SUMMARY

This Health Risk Assessment (HRA) was prepared in accordance with the requirements of the Bay Area Air Quality Management District (BAAQMD) and the California Environmental Quality Act (CEQA) to determine if significant health risks are likely to occur in conjunction with the development of the 300 Airport Boulevard (Project) in Burlingame, California.

The Project is located at 300 Airport Boulevard, Burlingame, CA on 18.12 acres and would construct 730,000 square feet of new office or life science uses, 37,000-square-foot amenities building, and above and below grade structured parking and surface parking. Analysis of the potential development of office space on the 8.58-acre 350 Airport Boulevard Site is also evaluated on a programmatic level. However, at the time of development of the 350 Airport Boulevard Site, a project-level analysis would be required with respect to health risk if land uses other than office space are developed. There are both stationary and mobile emissions sources within 1,000 feet of the Project. In addition, the Project will be implementing four diesel generators which represent additional sources with respect to health risk for the onsite daycare center and the offsite residential properties south of US 101.

The analysis contained in this report was prepared in accordance with the methodologies provided in BAAQMD's 2011 *California Environmental Quality Act Air Quality Guidelines* (Guidelines), and their *Recommended Methods for Screening and Modeling Local Risks and Hazards* documents. The risks were assessed using BAAQMD screening tools, US Environmental Protection Agency (EPA) CAL3QHCR dispersion model, and EMFAC 2007. The HRA analyzes the potential impact to the Project site from the high volume roadway and existing stationary sources as well as impacts to nearby receptors from construction activities, and impacts to onsite and nearby receptors from the implementation of the diesel generators.

The nearest offsite sensitive receptors are greater than 200 meters from the nearest construction source and therefore construction activities can be screened out from being potentially significant with respect to cancer risk, non-cancer risk, and $PM_{2.5}$ concentrations.

A screening level analysis was conducted to determine the impacts to the Project from nearby stationary and mobile sources. The results of the screening analysis showed that the maximum potential non-cancer risk is 0.040 and the maximum $PM_{2.5}$ concentration 0.262 $\mu g/m^3$. Because the screening level analysis shows individual and cumulative impacts with respect to non-cancer risk and $PM_{2.5}$ concentrations to be less than significant, no refined analysis was conducted. The screening analysis showed that offsite stationary sources were below the 10 in a million cancer risk threshold however US

101 results in a 29.868 per million cancer rate from the screening level. Refined modeling was conducted with respect to US 101 resulting in a refined cancer risk of 4.05 per million for children at the daycare center.

The diesel generators to be constructed onsite are greater than 1,000 feet from the nearest offsite receptor and therefore are not considered to be a potential risk for cancer, non-cancer, or $PM_{2.5}$ concentrations. Because the onsite generators will not be operated during the time the daycare center is occupied by children, they are not considered sources of health risk for the onsite receptor and were not modeled with respect to the daycare center.

In summary, the proximity of the Project to roadway and permitted stationary sources would not result in localized significant health risk impacts for any of the onsite sensitive receptors, nor would the construction activities pose a significant health risk to offsite sensitive receptors. Therefore, the implementation of the Project would be less than significant for impacts from air toxics and $PM_{2.5}$.

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List of Acronyms

10^{-6}	Micrograms to milligram conversion and liters to cubic meters conversion.
$\mu g/m^3$	Microgram per cubic meter
A	Inhalation absorption factor
AT	Averaging time period over which exposure is averaged (days)
BAAQMD	Bay Area Air Quality Management District
Basin	San Francisco Bay Area Air Basin
C	Annual average concentration in $\mu g/m^3$
CAL3QHCR	EPA dispersion Model
CARB	California Air Resources Control Board
CEQA	California Environmental Quality Act
DBR	Daily Breathing Rate (L/kg bodyweight – day)
Dose	Dose through inhalation (mg/kg/day)
DPM	Diesel Particulate Matter
ED	Exposure duration (years)
EF	Exposure frequency (days/year)
EPA	US Environmental Protection Agency
HI	Hazard Index
HQ	Hazard Quotient
HRA	Health Risk Assessment
ISCST3	EPA dispersion model
OEHHA	Office of Environmental Health Hazard Assessment
$PM_{2.5}$	Particulate Matter of 2.5 micrograms or less in size
REL	Reference exposure level
TAC	Toxic Air Contaminant
Yr	year

SECTION 1.0 – INTRODUCTION

This Health Risk Assessment (HRA) was prepared in accordance with the requirements of the Bay Area Air Quality Management District (BAAQMD) and California Environmental Quality Act (CEQA) to determine if significant health risks are likely to occur with the constructing the 300 Airport Boulevard Project (Project) and locating an onsite daycare center within 1,000 feet of US 101 and existing stationary sources.

The Project is located at 300 Airport Boulevard, Burlingame, CA on 18.12 acres and would construct 730,000 square feet of new office or life science uses with small accessory ground floor retail space; 37,000-square-foot amenities building, which would house a childcare facility, exercise facility, a café and small retail spaces; and above and below grade structured parking and surface parking. Analysis of the potential development of office space on the 8.58 acre 350 Airport Boulevard Site is also evaluated on a programmatic level. However, at the time of development of the 350 Airport Boulevard Site, a project-level analysis would be required for the site with respect to health risk if land uses other than office buildings or if stationary sources, including back-up generators are proposed with its operation.

The 300 Airport Boulevard Site is to the north of US 101, immediately adjacent to 350 Airport Boulevard to the north, San Francisco Bay (Bay) to the east, Sanchez Channel to the west, and commercial/industrial land uses directly south. Residential land uses occur to the south of US 101 and are approximately 850 feet from the southern property boundary. The 350 Airport Boulevard Site is bounded by the Bay to the north, Fisherman's Park to the east, 300 Airport Boulevard to the south, and the outlet of Sanchez Channel to the west (Exhibit 1).

The Project is located within 1,000 feet of an existing roadway with more than 10,000 vehicles per day (the US 101) and three permitted stationary sources. Both of the permitted stationary sources are diesel generators. One back-up generator is operated by Virgin America and located at 555 Airport Boulevard. A second undefined source, also located at 555 Airport Boulevard is owned by CA-Bay Park Plaza LP. The third is a diesel generator operated by the City of Burlingame at a pump station located at 399 Rollins Road.

1.1 Health Risk Assessments Overview

An HRA is the quantification of the potential risk posed to individuals that may be affected by exposure to a pollutant. The HRA translates a given rate of emissions from a particular source to a dose to which an individual is exposed. The dose, depending on level and pollutant, has the potential to cause adverse health effects in the exposed individual. For toxic air contaminants (TACs), the pathway having the

greatest significance is atmospheric dispersion which leads to exposure through inhalation. Therefore this assessment is focused on health risks from diesel particulate matter (DPM) and fine particulate matter ($PM_{2.5}$) through inhalation.

Adverse health risks are discussed in terms of non-cancer and cancer risks. Non-cancer health risks can be measured quantitatively with the risk designated as a hazard quotient. The hazard quotient is the ratio of the calculated concentration to a threshold which has been identified as having some level of adverse health effect.

Cancer risks have no set thresholds as carcinogens are considered to be non-threshold pollutants. This means that for any non-zero concentration of a carcinogen, there is an increased risk of developing cancer. Therefore, significance of exposure to a carcinogen is evaluated based on the increase in risk. The increased risk is determined by multiplying a calculated dose with the cancer potency factor of the pollutant and then by one million to express risk in the common term of the risk per million people. The most common cancer risk evaluated in an HRA is the increased cancer risk from the continuous exposure to a pollutant over a lifetime.

1.2 Climate/Meteorology

The Project area lies in the San Francisco Bay Area Air Basin (Basin). Covering an area of approximately 5,500 square miles, the Basin is composed of all of Alameda, Contra Costa, Marine, Napa, San Francisco, San Mateo, and Santa Clara counties along with the southeast portion of Sonoma County and the southwest portion of Solano County.

The Mediterranean climate of the Basin is characterized by warm dry summers and cool rainy winters. Yearly temperatures range from the low 30s to above 90 degrees Fahrenheit with summers averaging in the 60s and winters in the high 40s. Snowfall is rare with annual average precipitation of about 20 inches. The climate is dominated by a strong, semi-permanent, subtropical high-pressure cell over the northeastern Pacific Ocean.

Source: Google Earth 2011.

Project Site

N

Not to scale.

Health Risk Assessment
300 Airport Boulevard Project
Burlingame, CA

Exhibit 1
Site Map

Prepared by:: ATKINS

SECTION 2.0 – TOXIC AIR CONTAMINANTS

2.1 Introduction

Toxic Air Contaminants (TACs) are a set of airborne pollutants that may pose a present or potential hazard to human health that are emitted from a range of sources from industrial plants to motor vehicles and diesel generators. The public's exposure to TACs is a significant environmental health issue in California. In 1983, the California Legislature enacted a program to identify the health effects of TACs and to reduce exposure to these contaminants to protect the public health.

The Health and Safety Code defines a TAC as "an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health." A substance that is listed as a hazardous air pollutant pursuant to subsection (b) of Section 112 of the Federal Act (42 USC Sec. 7412[b]) is a toxic air contaminant. Under State law, the California Environmental Protection Agency, acting through the California Air Resources Board (CARB), is authorized to identify a substance as a TAC if it determines the substance is an air pollutant which may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health.

California regulates TACs primarily through AB 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics "Hot Spot" Information and Assessment Act of 1987). The Tanner Air Toxics Act sets forth a formal procedure for CARB to designate substances as TACs. Once a TAC is identified, CARB adopts an "airborne toxics control measure" for sources that emit designated TACs. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate toxics best available control technology (T-BACT) to minimize emissions.

To date CARB has designated nearly 200 compounds as TACs. Additionally, CARB has implemented control measures for a number of compounds that pose high risks and show potential for effective control. The majority of the estimated health risks from TACs can be attributed to a relatively small number of compounds, the most important being particulate matter from diesel-fueled engines.

2.2 Trends in Background TAC Levels

Trends in background concentrations of various TACs are published annually by CARB in the *California Almanac of Emissions and Air Quality* (Almanac). The Almanac summarizes available data for the ten TACs that pose the greatest known health risk in California. These include acetaldehyde, benzene, 1,3-

butadine, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, perchloroethylene, and DPM. At present, the estimated risk from DPM is greater than the risk of all other TACs combined and poses the most significant risk to California's population. CARB estimates that, of the known cancer risk in California, 79% of the top 10 outdoor air toxics are attributable to DPM. [1]

Land uses within California are being developed with an increased emphasis on reductions in vehicle miles traveled along with energy and water consumption. Especially with the passage of Assembly Bill 32 and its associated greenhouse gas reduction goal of meeting 1990 levels by 2020, the implementation of these principals are increasingly important with respect to land use planning. This type of planning reduces regional criteria air pollutant and greenhouse gas emissions effectively due to design; however, it also results in receptors being placed in closer proximity to localized sources of pollution. Therefore, the TAC reductions discussed above will be important in addressing this issue.

The Diesel Risk Reduction Plan, which recommends various control measures to reduce risk associated with DPM, was adopted by CARB in September of 2000. The recommended control measures were developed to achieve a reduction in PM of 85% by 2020. The Plan elements include retrofitting existing engines with emission control devices to adopt more stringent standards for new engines, further lowering of the sulfur content of fuel, and implementing advanced technology emission control devices on diesel engines. Without implementing the Plan, it is estimated that PM emissions from diesel use will only drop from 2000 levels by 17% in 2010 and 33% in 2020.[2]

Average statewide DPM concentration for 1990 was estimated at 3.0 micrograms per cubic meter ($\mu g/m^3$) and is associated with a cancer risk of 900 cases per million people exposed over a 70-year lifetime. 2000 estimates showed a 40% drop from 1990 with a concentration of 1.8 $\mu g/m^3$ and a risk of 540 cases per million. Without implementation of the Diesel Risk Reduction Plan, ambient concentrations for 2020 are estimated at 1.2 $\mu g/m^3$, while with the incorporation of the Diesel Reduction Plan ambient concentrations are reduced to 0.27 $\mu g/m^3$.[3]

2.3 Health Concerns

Due to the diverse nature of individual TACs, health effects associated with them can include both long-term impacts, including cancer, birth defects, neurological damage, asthma, bronchitis, or genetic

[1] CARB *California Almanac of Emissions and Air Quality,* 2009, page 5-5 and 4-44.
[2] CARB *California Almanac of Emissions and Air Quality,* 2009, page 5-44.
[3] CARB *California Almanac of Emissions and Air Quality,* 2009, page 5-44.

damage; and short-term effects such as eye watering, persistent cough, running nose, throat pain, and headaches.

To address the added risk from community exposure to air toxics BAAQMD implemented the Community Air Risk Evaluation (CARE) Program, in 2004. Through this program, BAAQMD has identified a number of urban and industrialized communities where exposure to TACs is comparatively high. These areas include Western Alameda County, Concord, eastern San Francisco, Redwood City/East Palo Alto, Richmond/San Pedro, and San Jose.[4] The Project is not located in one of the six areas identified by BAAQMD as an impacted community and is not anticipated to have higher ambient levels of air toxics therefore it will not result in higher levels of health concerns for residents.

2.3.1 Diesel Particulate Matter

Diesel Particulate Matter (DPM) is a mixture of many exhaust particles and gases that are produced when an engine burns diesel fuel. Many compounds found in diesel exhaust are carcinogenic or are classified as possibly carcinogenic by the International Agency for Research on Cancer. DPM includes the particle-phase constituents in diesel exhaust. Some short-term effects of diesel exhaust include eye, nose, throat, and lung irritation. Exposure can cause coughs, headaches, light-headedness, and nausea. Diesel exhaust is a major source of ambient particulate matter pollution as well, and numerous studies have linked elevated particle levels in the air to increased hospital admission, emergency room visits, asthma attacks, and premature deaths among those suffering from respiratory problems.[5] DPM in the Basin poses the greatest cancer risk of all the toxic air pollutants.

CARB monitored outdoor TAC concentrations in the San Francisco Bay Area Air Basin from 1990 through the present. Emissions of DPM from the Basin are primarily from mobile sources and represent approximately 12% of the statewide DPM emissions, and account for 90% of all DPM emissions within the Basin. Between 1990 and 1995, overall cancer risk within the Basin (including DPM) dropped from 1,153 cases million to 884 cases in a million, and dropped again between 1995 and 2000 to 659 per one million people exposed.[6]

[4] BAAQMD *Recommended Methods for Screening and Modeling Local Risks and Hazards* May 2011, page 4.
[5] Office of Environmental Health Hazard Assessment. 2003. *Air Toxics Hot Spots Program Risk Assessment Guidelines, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Assessments*.
[6] CARB *California Almanac of Emissions and Air Quality,* 2009, page 5-61.

2.3.2 Fine Particulate Matter

Although not specifically identified as a TAC fine particulate matter (particulate matter of 2.5 microns or less [$PM_{2.5}$]) has been linked with respiratory illness and premature deaths.[7,8] $PM_{2.5}$ consists of extremely small, suspended particles or droplets 2.5 microns or smaller in diameter. Some sources of particulate matter, like pollen and dust generated during windstorms, are naturally occurring. However, in populated areas, most particulate matter is caused by road dust, diesel soot, combustion product, abrasion of tires and brakes, and construction activities.

There is a consistent correlation between elevated ambient concentrations of $PM_{2.5}$ and an increase in mortality rates, respiratory infections, number and severity of asthma attacks, and the number of hospital admissions observed in different parts of the United States and around the world. In recent years, some studies have reported an association between long-term exposure to air pollution dominated by fine particles and increased mortality, reduction in life-span, and an increased mortality from lung cancer.

The elderly, people with pre-existing respiratory or cardiovascular disease, and children appear to be more susceptible to the effects of high levels of $PM_{2.5}$. Daily fluctuations in $PM_{2.5}$ concentration levels have also been related to hospital admissions for acute respiratory conditions in children, school and kindergarten absences, a decrease in respiratory lung volumes in normal children, and increased medication use in children and adults with asthma. Recent studies show lung function growth in children is reduced with long-term exposure to particulate matter.

2.4 Sensitive Receptors

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Sensitive population groups include children, the elderly, the acutely ill, and the chronically ill, especially those with cardio-respiratory diseases. Residential areas are considered to be sensitive to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Schools are also considered sensitive as children are present for extended durations and engage in regular outdoor activities. Recreational land uses are considered moderately sensitive to air pollution because exercise places a high demand on respiratory functions, which can be impaired by air pollution.

[7] BAAQMD *CEQA Guidelines* May 2011, page 5-1.
[8] BAAQMD *Recommended Methods for Screening and Modeling Local Risks and Hazards* May 2011, page 4.

Because the Project includes a daycare center within 1,000 feet of an existing roadway with more than 10,000 vehicles per day, and three permitted stationary sources, the daycare center is considered a sensitive receptor. In addition to the development of the daycare center, the Project proposes the use of four back-up generators onsite. Because the Project boundary is within 1,000 feet of existing residential land uses, the potential impact of these sources on the daycare center and residential property is also addressed.

For construction emissions, the sensitive receptors of concern with respect to 300 Airport Boulevard are the residential land uses south of US 101. There is the potential for the 300 Airport Boulevard project to be developed in two phases with the daycare center being developed with the first phase. Therefore the daycare center will be addressed in this analysis as if it is a sensitive receptor. With respect to 350 Airport Boulevard, sensitive receptors of concern consist of the residential receptors south of US 101 and additionally the daycare center at 300 Airport Boulevard as the daycare center will likely be operational before construction at 350 Airport Boulevard begins.

Exhibit 2 depicts the receptor locations used for refined risk analysis for the operational analysis and Exhibit 3 depicts the receptor locations used for the refined construction risk analysis. Four of the receptor locations used in the operational analysis were used in the construction analysis however, an additional three receptors were added to the construction analysis to better define risk at various locations throughout the amenities building and the outdoor play yard.

Source: Google Earth 2011.

- Project Site
- Receptor Location
- Roadway Origin

N

Not to scale.

Health Risk Assessment
300 Airport Boulevard Project
Burlingame, CA

Exhibit 2
Receptor Locations—Operational

Prepared by:: ATKINS

Source: Google Earth 2011.

Project Site

Receptor Location

N

Not to scale.

Health Risk Assessment
300 Airport Boulevard Project
Burlingame, CA

Exhibit 3
Receptor Locations—Construction

Prepared by:: ATKINS

SECTION 3.0 – METHODOLOGY

This HRA was prepared in accordance with the requirements of BAAQMD and CEQA to determine if significant health risks to onsite sensitive receptors are likely to occur in conjunction with the construction and operation of the 300 Airport Boulevard Project (Project).

3.1 Thresholds of Significance

In order to determine whether or not construction activities or existing TAC and $PM_{2.5}$ sources would result in a significant environmental effect for an identified receptor, the impact from these sources on the receptor must be determined through the examination of the types and levels of air toxics emissions that are generated and their impacts on factors that affect air quality within the project vicinity. While, the final determination of significance thresholds is within the purview of the lead agency pursuant to the State CEQA Guidelines, BAAQMD recommends that for evaluation of construction emission impacts or when siting a new sensitive receptor within 1,000 feet of existing mobile or stationary TAC sources, the following thresholds[9] be observed:

- Compliance with a qualified Community Risk Reduction Plan; or
- A single source with an excess cancer risk level of less than 10 in one million, or a non-cancer risk less than 1.0 hazard index (HI);
- An incremental increase of less than 0.3 $\mu g/m^3$ annual average $PM_{2.5}$ from a single source;
- Cumulative sources with an excess cancer risk level of less than 100 in one million, or a non-cancer risk less than 10.0 HI;
- An incremental increase of less than 0.8 $\mu g/m^3$ annual average $PM_{2.5}$ from multiple sources.

3.2 Analysis Approach

3.2.1 Construction Analysis

Construction activities could result in the generation of TAC emissions, specifically DPM, from on-road haul trucks, and off-road equipment exhaust emissions. Because of the variability in construction scenarios, the generation of TACs from construction activities would be temporary, especially considering the short amount of time the equipment is operating and the nature of risk as resulting from an extended period of exposure (9 to 70 years depending on the nature of the receptor). BAAQMD Guidelines recommend that impacts associated with construction be addressed on a case-by-case basis

[9] BAAQMD *CEQA Guidelines* May 2011, page 5-3.

taking into consideration the specific construction related characteristics of each project and proximity to offsite receptors. Specifically the analysis should take into account the following information:

- Types of offsite receptors and their proximity to construction activity within approximately 1,000 feet;
- Duration of construction period;
- Quantity and types of diesel-powered equipment;
- Number of hours equipment would be operated each day;
- Location(s) of equipment use, distance to nearest offsite sensitive receptors, and orientation with respect to the predominant wind direction;
- Location of equipment staging area; and
- Amount of onsite diesel-generated $PM_{2.5}$ exhaust (assuming that all onsite diesel $PM_{2.5}$ exhaust is diesel PM) if mass emission levels from construction activity are estimated.

Because there are offsite residential receptors south of US 101, the proposed development at 300 Airport Boulevard has the potential to expose these residences to health risks from construction activity. Along with the residential receptors south of US 101, construction at 350 Airport Boulevard would have the potential to expose the daycare center at 300 Airport Boulevard to risk from construction equipment emissions. The potential for significant construction related risk to both the onsite and offsite receptors is analyzed herein.

Project Screening

BAAQMD's *Screening Tables for Air Toxics Evaluation During Construction* were used to evaluate the minimum distance required between the fence line of a construction site and nearby sensitive receptors to ensure that cancer and non-cancer risks associated with the Project are less than significant. Receptors that fall within the radius determined by the screening tables have the potential to be significantly impacted and refined modeling must be considered. According to the screening tables, for an 18.12 and 8.58 acre site, the minimum distances are 225 and 200 meters[10] respectively.

Refined Analysis

The Project at 300 Airport Boulevard may be constructed in two phases with the construction of the east campus and the amenities building, along with the realignment of Airport Boulevard being constructed as Phase 1. Phase 2 would consist of buildings 3 and 4 as well as the parking structure and is considered the West Campus (see Exhibit 1). While the amenities building is located on the West Campus it may be

[10] BAAQMD 2010. *Screening Tables for Air Toxics Evaluation During Construction* version 1.0 May 2010. Pg 9.

constructed in conjunction with the East Campus and therefore has the potential to be operating during construction of Phase 2. For analysis purposes it is assumed that the daycare center would be in the portion of the building directly adjacent to the play yard and therefore furthest from the construction activities. This location corresponds to receptor number 20, indoors, and receptors 4 and 7 outdoors, on Exhibit 3.

Concentrations of DPM and $PM_{2.5}$ with respect to West Campus Construction impacts on the daycare center were analyzed using the US Environmental Protection Agency's (EPA) ISCST3 Dispersion Model, in accordance with guidance from BAAQMD[11]. Risks for DPM were determined using the BAAQMD's 2011 *Guidelines*. Concentrations were obtained from the modeling using an emission factor of 1. The modeled concentrations were then multiplied by an emission factor ($3.31e^{-07}$) to provide a concentration expected at that specific receptor. These converted concentrations were compared against the BAAQMD threshold for $PM_{2.5}$ and used to determine cancer and non-cancer risk. Detailed determination of emission factors are included in Appendix A.

3.2.2 Operational Analysis

When a new sensitive receptor, such as the daycare center at the Project, is being sited within the jurisdiction of BAAQMD, BAAQMD recommends that all TAC and $PM_{2.5}$ sources within a 1,000 foot radius of the project site be identified. Sources that should be identified include permitted stationary sources as well as freeways and major roadways (roadways with 10,000 annual average daily vehicles or more).

The BAAQMD Guidelines provide a phased approach for estimating Risk and Hazards with respect to siting new sources or receptors. During the first phase, all of the sources within 1,000 feet of the project border are identified. If there are no sources, then no further analysis is required. If there are sources within the zone of influence then a screening level analysis or air dispersion modeling should be conducted.

With respect to operational activities, the Project at 300 Airport Boulevard includes the development of a daycare center which is a sensitive receptor. In addition to this onsite receptor, the inclusion of four back-up generators makes the Project a potential source with respect to both the daycare center as well as the residences south of US 101. For 350 Airport Boulevard, the development is not anticipated to include sensitive land uses, however it may include onsite generators, therefore at an operational level, would be considered a potential source with respect to the daycare center at 300 Airport Boulevard..

[11] BAAQMD 2010. Personal Communication James Cordova BAAQMD, September 16, 2011.

However, because of its distance from the residential receptors south of the 101 Freeway, it would not be a potential source with respect to offsite receptors

The Guidelines recommend that all TAC and $PM_{2.5}$ sources within 1,000 feet of the Project boundaries be identified and their individual and cumulative impacts on a proposed receptor development determined. TAC and $PM_{2.5}$ sources are defined as major roadways (with more than 10,000 daily vehicle trips), and all stationary sources, including back-up generators. According to BAAQMD screening tools three stationary and one roadway sources were identified within the 1,000 foot zone of influence for the Project and are required to be analyzed within the HRA.

Project Screening

The screening tools provided by BAAQMD[12,13,14] estimate $PM_{2.5}$ concentrations, cancer risk, chronic hazard risk, and acute hazard risk. These are conservative estimates of risks and are not based on actual project specific health risk screening assessments. The screening tools are designed such that if a project results in levels below thresholds with the initial screening, then no additional review is required.

The following steps were followed for the screening level analysis. First an initial conservative screening was conducted. Permitted sources were identified in Google Earth using the Stationary Source Screening Analysis Tool. Where estimations for $PM_{2.5}$, cancer risk, and hazard values were provided, they were identified and used. Screening level $PM_{2.5}$ concentrations and risk levels for those stationary sources that were not provided by the Screening Tool were obtained directly from BAAQMD. Estimated concentrations and cancer risks for highways were obtained from the BAAQMD's *Highway Screening Analysis Tool*. No major roadways (those non-freeway roadways where average annual daily trips (AADT) are greater than 10,000 vehicles) were identified within the Project zone of influence.

Refined Modeling

The Project proposes to include four backup generators within the development. These back-up generators have the potential to impact both the onsite daycare center as well as offsite receptors south of US 101. Further, the Project is located within 1,000 feet of three stationary sources and US 101. While the stationary sources are screened out based on the BAAQMD screening tools, US 101 remains a potentially significant impact after evaluation using the screening tools. Therefore, a refined analysis for impacts to the proposed daycare center with respect to US 101 was conducted.

[12] BAAQMD *Screening Analysis Flow Chart*, May 2011.
[13] BAAQMD *Stationary Source Screening Analysis Tool, San Francisco,* May 2011.
[14] BAAQMD *Roadway Screening Analysis Tables*, April 2011.

As necessary, concentrations of DPM and $PM_{2.5}$ with respect to onsite stationary source impacts on the daycare center and offsite receptors would be analyzed using the US Environmental Protection Agency's (EPA) ISCST3 Dispersion Model, in accordance with guidance from BAAQMD[15]. Cancer and non-cancer risks for DPM would be determined using the BAAQMD's 2011 *Guidelines*. Because the incorporation of operational standards for the onsite generators and the generator distance from offsite receptors, the onsite stationary sources result in less-than-significant impacts to the onsite and offsite sensitive receptors and no refined analysis was required with respect to stationary sources.

Emissions from US 101 were evaluated based on BAAQMD Guidelines using the Cal3QHCR dispersion model. Average hourly emission factors were determined through EMFAC and weighted with respect to the sensitivity factors appropriate for daycare-aged children. It was assumed that children would be present onsite between birth and kindergarten, or a maximum of six years and could, conservatively, be onsite for up to twelve hours per day. Emission factors (Table 1) and other project specific data (Table 2) related to siting the daycare center within 1,000 feet of US 101 were entered into the Cal3QHCR model to determine emissions estimated for 2008. Concentrations obtained from the model were then multiplied by a conversion factor to provide a concentration expected over a 70 year average (Table 2). These converted concentrations were then used to determine cancer risk. Detailed determination of emission factors as well as Cal3QHCR inputs and 70 year average conversion factors are included in Appendix A.

Table 1 – Emission Factors (gr/VMT)

Hour	$PM_{2.5}$	TOC exhaust	TOC Running	Hour	$PM_{2.5}$	TOC exhaust	TOC Running
24	0.16	0.22	0.09	12	0.20	0.21	0.14
1	0.10	0.26	0.10	13	0.22	0.20	0.12
2	0.13	0.28	0.08	14	0.22	0.19	0.12
3	0.27	0.41	0.07	15	0.21	0.19	0.13
4	0.25	0.26	0.08	16	0.22	0.19	0.12
5	0.24	0.25	0.09	17	0.15	0.19	0.12
6	0.26	0.20	0.08	18	0.19	0.19	0.12
7	0.27	0.21	0.11	19	0.17	0.20	0.12
8	0.20	0.22	0.11	20	0.18	0.21	0.11
9	0.22	0.26	0.13	21	0.16	0.19	0.10
10	0.24	0.24	0.13	22	0.11	0.19	0.09
11	0.22	0.22	0.13	23	0.16	0.21	0.10

Source: Atkins 2011

[15] BAAQMD 2010. Personal Communication James Cordova BAAQMD, September 16, 2011.

Table 2 – CAL3QHCR Parameters	
Parameter	**Value**
Calculation averaging time (minute)	60
Surface Roughness – Office	170
Settling velocity (cm/s)	0
Deposition velocity (cm/s)	0
Site setting	U
Form of traffic volume, emissions rate data (one week of hourly data)	2
Pollutant (P to give results in $\mu g/m^3$)	P
Hourly ambient background concentration ($\mu g/m^3$)	0
Roadway height indicator (at grade)	AG
Roadway height (ft)	0
70 year conversion factor (TOC exhaust)	0.908
70 year conversion factor (TOC running)	1.114
70 year conversion factor (DPM)	0.924
Source: Atkins 2011	

3.3 Cancer Risk Calculations

DPM exposure through inhalation is calculated from the annual average DPM concentrations as derived from the dispersion modeling methodology of BAAQMD.[16] The following equation was used to determine the associated cancer risk:

Cancer Risk = Dose * CRAF * Cancer Potency

Where:

Dose = Dose through inhalation (mg/kg/day).

CRAF = 10 for construction because the daycare is assumed to have children between birth and kindergarten age. Between birth and 2 years old a CRAF of 10 is used to signify the increased risk to this age group. Because the construction will take up to 20 months, the worst case scenario would be for a child to be exposed from birth to 20

[16] BAAQMD *Recommended Methods for Screening and Modeling Local Risks and Hazards.* May 2011.

months, therefore always at the elevated risk. 1.0 was used for operational because the cancer risk adjustment factor was accounted for in the determination of the age adjusted emission factor used in the modeling.

Cancer Potency Factor = toxicity factor, for DPM is 1.1 kg-day/mg.

The inhalation dose for DPM was determined by the following equation:

$$Dose = (C * DBR * EF * ED * CF) / AT$$

Where:

- Dose = Dose through inhalation (mg/kg/day).
- C = Concentration in air ($\mu g/m^3$) (annual average from ISTC3 dispersion model).
- DBR = Daily Breathing Rate (L/kg bodyweight – day) (302 – 80th percentile).
- EF = Exposure frequency (365 days per year).
- ED = Exposure duration (years) (70 for residential and 6 for school).
- CF = 10^{-6} Micrograms to milligram conversion and liters to cubic meters conversion.
- AT = Averaging time period over which exposure is averaged (days) (25,550 days).

3.4 Non-Cancer Health Risk

The non-cancer risk (or Hazard Quotient) from exposure through inhalation would be calculated from the annual average concentrations as derived from the dispersion modeling methodology of BAAQMD.[17] The following equation would be used to determine the associated Hazard Quotient. However, the screening analysis and project operational standards ensure that non-cancer health risks are below the operational thresholds, therefore no refined modeling was required with respect to non-cancer health risk.

$$HQ = C / REL$$

Where:

- HQ = Hazard Quotient: an expression of the potential for non-cancer health effects associated with the substance being evaluated.
- C = Concentration in air ($\mu g/m^3$) (annual average from ISTC3 dispersion model).
- REL = Reference exposure level; the concentration at which no adverse health effects are anticipated (5 $\mu g/m^3$ for DPM).

[17] BAAQMD *Recommended Methods for Screening and Modeling Local Risks and Hazards.* May 2011

3.5 $PM_{2.5}$ Concentration

The concentration of $PM_{2.5}$ anticipated at each of the receptors would be derived directly from the ISTC3 or Cal3QHCR model. However, the screening level analysis and operational standards incorporated into the project ensure that the concentration $PM_{2.5}$ is below the thresholds, therefore refined modeling was not conducted with respect to $PM_{2.5}$ emission concentrations.

SECTION 4.0 – ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

TACs are associated with cancer and non-cancer health effects which vary with the individual (some people are more susceptible than others); with the dose (the concentration of the pollutant in the air); and with the amount of time exposed. $PM_{2.5}$ exposure is also anticipated to cause adverse health effects for those exposed to increased levels. This analysis discusses both the cancer and non-cancer health effects from construction activities, vehicle traffic and DPM associated with stationary sources as well as exposure to $PM_{2.5}$. Exhibit 4 shows the location of the mobile and permitted stationary sources with respect to the Project site.

4.1 Construction Risk Characterization

4.1.1 Screening Level Analysis

BAAQMD's *Screening Tables for Air Toxics Evaluation During Construction* were used to evaluate the minimum distance required between the fence line of a construction site and nearby sensitive receptors to ensure that $PM_{2.5}$ concentrations and cancer and non-cancer risks associated with the project are less than significant. According to the screening tables for an 18.12 acre site such as 300 Airport Boulevard and a 8.58 acre site such as 350 Airport Boulevard, the minimum distances are 225 and 200 meters respectively[18]. The nearest offsite receptors with respect to 300 Airport Boulevard are located south of US 101 at a distance of equal or greater than 255 meters. While there is a 0.39 acre portion that extends to approximately 215 meters of the residential receptors, the confines of the site limit the amount of construction activities that can occur on this portion at any given time. The screening distance associated with a 0.39 acre site is approximately 100 meters, meaning construction can be significantly closer to this small area than to the main portion of the site. Therefore, the distance with respect to screening the 300 Airport Boulevard construction activities was set at the boundary of the main construction area.

It is unknown if the 300 Airport Boulevard site would be developed in one phase or two. If developed in two phases, there is the potential for the daycare center to be constructed and occupied during the construction of the second phase of development. The amenities center, which houses the daycare, is located in what is called the west campus, the area west of the realigned Airport Boulevard. With the exception of the amenities building, the West Campus area would be constructed as part of Phase 2 and

[18] BAAQMD 2010. *Screening Tables for Air Toxics Evaluation During Construction* version 1.0 May 2010. Pg 9.

Source: Google Earth 2011.

Project Site
Roadway linkage endpoints
Roadway linkage
Onsite Generators
Offsite Sources

N

Not to scale.

Health Risk Assessment
300 and 350 Airport Boulevard
Burlingame, CA

Exhibit 4
Stationary Sources & Roadway linkages

Prepared by:: ATKINS

therefore would result in potential health risk impacts to the students of the daycare center. The West Campus is just over 7 acres in size, however because the amenities building would be adjacent to the construction area, it would be well with the 200 meter offset distance and therefore requires a refined analysis to determine the potential risk.

The nearest offsite receptor with respect to 350 Airport Boulevard is the proposed daycare center to be located at the southern border of 300 Airport Boulevard. The 350 Airport Boulevard site is 203 meters to the building and 213 meters to the outside play area. Because the receptors are located at distance greater than the minimum required screening distance for both 300 Airport Boulevard and 350 Airport Boulevard, construction activities are not anticipated to result in cancer risk, non-cancer risk, or $PM_{2.5}$ concentrations above the regulatory thresholds.

Therefore, with respect to construction activities, both the development at 300 Airport Boulevard and the future development at 350 Airport Boulevard are anticipated to be less than significant with respect to offsite receptors. Construction at 350 Airport Boulevard is anticipated to be less than significant with respect to onsite receptors as well, therefore requiring no further analysis. However, should construction at 300 Airport Boulevard be constructed in phases where the daycare center is operational during the second phase of construction, there is the potential for excessive risk and therefore further modeling was required.

4.1.2 Cancer Risk

Cancer risk from the construction of the West Campus within 200 meters of the operating daycare center was determined as detailed in Section 3.3 above, by the dose multiplied by the cancer potency factor and then converted to risk per million people. Table 3 shows the maximum unmitigated and mitigated risk at each receptor. It is not anticipated that additional projects would be constructed at the same time within a 1,000 foot radius of the project, therefore cumulative risk would be the same as individual risk with respect to construction of Phase 2 of the project. Detailed calculation of risk with respect to individual receptor locations on the project site is included in Appendix B.

The range of unmitigated cancer risk at the modeled locations representing the location of the amenities center and the outside play area is from 41.04 to 133.02, well beyond the 10 in a million threshold for individual sources, and 100 in a million for cumulative sources. With the implementation of mitigation measure MM-HRA.1 risk would be reduced to between 8.30 and 51.30 in a million. Risk for the outdoor play yard is anticipated at 41.04 and 51.30 in a million well above the threshold. Risk for inside the amenities building is reduced to 8.30 adjacent in the portion of the building associated with

the daycare center's location. Therefore with the implementation of MM-HRA.1, potential risk at the daycare center would be reduced to less than significant for both individual and cumulative risk.

Table 3 – Construction Cancer Risk

Receptor #	*Receptor type*	*Unmitigated*	*Significant?*	*Mitigation HRA-1*	*Significant?*
Cancer Risk (threshold >10 per million)					
3	child	56.31	YES	8.45	No
4	child	41.04	YES	41.04	YES
6	child	102.53	YES	15.38	YES
7	child	51.30	YES	51.30	YES
18	child	78.66	YES	11.80	YES
19	child	133.02	YES	19.95	YES
20	child	55.31	YES	8.30	No
Source: Atkins 2011					

4.1.3 Non-Cancer Risk

Non-Cancer risk from the construction of the West Campus within 200 meters of the operating daycare center was determined as detailed in Section 3.4 above. Table 4 shows the maximum unmitigated and mitigated risk at each receptor. It is not anticipated that additional projects would be constructed at the same time within a 1,000 foot radius of the project, therefore cumulative risk would be the same as individual risk with respect to construction of Phase 2 of the project. Detailed calculation of risk with respect to individual receptor locations on the project site is included in Appendix B.

The range of unmitigated non-cancer risk at the modeled locations is from 0.08 to 0.25, well below the regulatory threshold of 1 for individual sources and 10 for cumulative. With the implementation of mitigation measure MM-HRA.1 risk would be further reduced to between 0.02 and 0.09. Even without implementation of Mitigation measure MM-HRA.1 non-cancer risk would be less than significant with respect to construction activities in the vicinity of the daycare center.

Table 4 – Construction Non-Cancer Risk					
Receptor #	***Receptor type***	***Unmitigated***	***Significant?***	***Mitigation HRA-1***	***Significant?***
Non-Cancer Risk (threshold >1)					
3	child	0.10	No	0.02	No
4	child	0.08	No	0.08	No
6	child	0.19	No	0.03	No
7	child	0.09	No	0.09	No
18	child	0.15	No	0.02	No
19	child	0.25	No	0.04	No
20	child	0.10	No	0.02	No
Source: Atkins 2011					

4.1.4 $PM_{2.5}$ Exposure

$PM_{2.5}$ exposure from the construction of the West Campus within 200 meters of the operating daycare center was determined as detailed in Section 3.53 above. Table 5 shows the maximum unmitigated and mitigated concentrations at each receptor location. It is not anticipated that additional projects would be constructed at the same time within a 1,000 foot radius of the project, therefore cumulative exposure would be the same as individual exposure with respect to $PM_{2.5}$ concentrations from construction of Phase 2 of the project. Detailed calculations with respect to individual receptor locations are included in Appendix B.

The range of unmitigated concentrations at the modeled locations representing the location of the amenities center and the outside play area is from 0.38 to 1.23 $\mu g/m^3$, well beyond the 0.3 $\mu g/m^3$ threshold for individual sources, and 0.8 $\mu g/m^3$ for cumulative sources. With the implementation of mitigation measure MM-HRA.1 concentrations of $PM_{2.5}$ would be reduced to between 0.08 and 0.47 $\mu g/m^3$. Risk for the outdoor play yard is anticipated at 0.38 and 0.47 $\mu g/m^3$ still exceeding the individual threshold but not the cumulative threshold. Risk for inside the amenities building is reduced to 0.08 and 0.18 $\mu g/m^3$, well below both the individual and cumulative thresholds. Therefore with the implementation of MM-HRA.1, potential impacts from $PM_{2.5}$ exposure at the daycare center would be reduced to less than significant on both an individual and cumulative level.

Table 5 – Construction $PM_{2.5}$ Concentrations					
Receptor #	***Receptor type***	***Unmitigated***	***Significant?***	***Mitigation HRA-1***	***Significant?***
Cancer Risk (threshold >0.3 $\mu g/m^3$)					
3	child	0.52	Yes	0.08	No
4	child	0.38	Yes	0.38	Yes
6	child	0.95	Yes	0.14	No
7	child	0.47	Yes	0.47	Yes
18	child	0.73	Yes	0.11	No
19	child	1.23	Yes	0.18	No
20	child	0.51	Yes	0.08	No
Source: Atkins 2011					

4.1.5 Mitigation Measures

Construction of the proposed project will result in unmitigated cancer risk and $PM_{2.5}$ exposure above the recommended regulatory thresholds at both the individual and cumulative levels. Implementation of the following mitigation measure would reduce impacts to less than significant during the construction of Phase 2 of the development at 300 Airport Boulevard. The analysis provided in Tables 3 through 5 above show the anticipated results for inside the building provided the air intake for the building is located at that receptor location. Therefore, although the tables may show increased levels, risk and $PM_{2.5}$ concentrations throughout the building would be reduced to the same levels as receptor 20 with the implementation of the following mitigation measure.

MM-HRA.1 As part of the conditions of daycare operation during the construction of Phase 2 of the proposed project, the following will be implemented:

a. The building would be designed such that the air intake would be located at the far eastern edge of the building with the air intake facing east.

b. A MERV 15 or higher rated filter would be installed and operated for at least the duration of construction activities. The MERV 15 or higher rated filters have the potential to remove up to 85% of particles of 2.5 microns or greater thereby reducing interior levels of pollutants.

c. All outdoor activities would be suspended while construction activities are occurring.

4.2 Operational Risk Characterization

4.2.1 Screening Level Analysis

BAAQMD Guidelines recommend that all TAC and $PM_{2.5}$ sources within 1,000 feet of the Project boundaries be identified and their individual and cumulative impacts on a proposed receptor development determined. TAC and $PM_{2.5}$ sources are defined as major roadways (with more than 10,000 daily vehicle trips), and all stationary sources, including back-up generators. For the purposes of this analysis four onsite stationary sources, three offsite stationary sources and one mobile source were identified within the 1,000 foot zone of influence for the Project for 300 Airport Boulevard. The following are the four sources analyzed with respect to individual and cumulative risk within the HRA:

- Source ID# 17695: A back-up generator operated by Virgin America and located at 555 Airport Boulevard, approximately 300 feet west the Project site.
- Source ID# 16542: Is operated by CA-Bay Park Plaza, LP and is also located at 555 Airport Boulevard, approximately 300 feet west of the Project site.
- Source ID#:14464: A diesel generator operated by the City of Burlingame at a pump station located at 399 Rollins Road, approximately 900 feet south of the Project site.
- US 101: Located approximately 680 feet from the daycare center, south of the project site.
- Onsite Sources: Four onsite diesel operated back-up generators located at or below ground adjacent to the four new onsite office buildings. The closest of these sources are located approximately 200 feet from the outside play are of the daycare center and over 1,100 feet from the nearest sensitive receptors south of US 101.

The development at 350 Airport Boulevard is not anticipated to include any sensitive receptors. 350 Airport Boulevard may construct a back-up generator associated with onsite operations, however it is assumed for the purposes of this analysis, that the generator would operate under the same restrictions as those identified for 300 Airport Boulevard. Therefore, operational health risk with respect to this site is considered on a qualitative level in this analysis. At the time full project definition and development specifications for 350 Airport Boulevard are known a full health risk evaluation with respect to the new development design shall need to be undertaken if the development includes a sensitive receptor or the

back-up generator will not observe the same operating conditions as identified for the 300 Airport Boulevard development.

The screening level analysis for the permitted sources and roadways was conducted as detailed in Section 3 above. Tables 6 and 7 show the results of the screening level analysis for roadways and permitted sources respectively on an individual impact level. Table 8 shows the results of the combined impact screening level analysis. As shown, the Project would not be exposed to either individual or cumulative emissions above the thresholds for Cancer Risk (10 and 100 per million), from offsite stationary sources or non-cancer hazard (1 and 10), or $PM_{2.5}$ concentrations (0.3 and 0.8 $\mu g/m^3$) from either offsite stationary sources or US 101. However, the onsite stationary source may represent a significant impact to onsite receptors, and US 101 exceeds the regulatory thresholds for cancer risk based on the screening analysis.

Table 6: Screening Level Analysis – Roadway Sources

Street	*Distance (ft)*	*$PM_{2.5}$ (>0.3 $\mu g/m^3$)[1]*	*Hazard Quotient (> 1)*	*Risk (> 10 per mil.)[2]*
101 Freeway	500	0.268	0.041	30.56
	685	0.262	0.040	29.868
	750	0.260	0.04	29.625
Significant	-	*No*	*No*	*Yes*

Sources:
Distance: Google Earth Pro 2011.
Risk and Concentration: BAAQMD Highway Screening Tool, April 29, 2011..
Distance: Of 500 & 700 feet are the closest distances represented in the screening tool.
Distance: Of 685 feet is the actual distance to the site. Values at the site distance are extrapolated from the screening tool values based on BAAQMD methodology.

Notes:
All maximum acute and chronic hazard index for the distances shown in the screening tables will be below 0.02 $\mu g/m^3$.

Table 7: Screening Level Analysis – Stationary Sources

Source #	Source ID	$PM_{2.5}$ (>0.3 μg/m³)	Hazard Index (>1)	Risk (> 10 per mil)
1	17695	0.009	0.006	2.992
2	14464	0.029	0.005	9.350
3	16542	0.002	0.003	7.600
4	350 Airport Boulevard[a]	0.000	0.000	0.000
4	Onsite[b]	0.000	0.000	0.000
	Significant	*No*	*No*	*No*

Sources:
BAAQMD *Stationary Source Screening Analysis Tool, San Francisco,* May 2011. Source inquiry form included in Appendix B.

[a] The onsite generators assumed to be constructed at 350 Airport Boulevard are anticipated to operated under the same conditions as the generators at 300 Airport Boulevard.

[b] Onsite sources represent the 4 potential emergency back-up generators. They are more than 1,000 feet from the existing offsite residential and are therefore negligible risk. Because they will only be operated when the onsite daycare center is not operating, they are considered to have no impact on the daycare center with respect to health risk.

Table 8: Screening Level Analysis – Cumulative

Source #	Source ID	$PM_{2.5}$ (>0.8 μg/m³)	Hazard Index (>10)	Risk (> 100 per mil)
1	17695	0.009	0.006	2.992
2	14464	0.029	0.005	9.350
3	16542	0.002	0.003	7.600
4	350 Airport Boulevard[a]	0.000	0.000	0.000
5	Onsite[a]	0.000	0.000	0.000
6	101 Freeway	0.262	0.040	29.868
	Total Cumulative	*0.303*	*0.055*	*49.810*
	Significant	***No***	***No***	***No***

Source: Atkins 2011

[a] The onsite generators assumed to be constructed at 350 Airport Boulevard are anticipated to operated under the same conditions as the generators at 300 Airport Boulevard.

[b] Onsite sources represent the 4 potential emergency back-up generators. They are more than 1,000 feet from the existing offsite residential and are therefore negligible risk. Because they will only be operated when the onsite daycare center is not operating, they are considered to have no impact on the daycare center with respect to health risk.

The Project operations will, as outlined in Section 4.2.2, operate the generator outside of the normal business hours for the daycare facility. Therefore, based on these operating restrictions, the existence of onsite back-up generators is not anticipated to result in significant risk for the daycare center and is not analyzed further. However, the screening levels anticipated from US 101 exceed the individual risk thresholds for the daycare center for cancer risk. Therefore, refined analysis with respect to cancer risk from proximity to US 101 was conducted.

Because the onsite generators are located over 1,000 feet from the nearest offsite receptor, they are not anticipated to result in significant impacts and are therefore excluded from further analysis with respect to offsite receptors.

4.2.2 Cancer Risk

Cancer risk from locating the daycare center within 1,000 feet of US 101 was determined as detailed in Section 3.3 above, by the dose multiplied by the cancer potency factor and then converted to risk per million people. Table 9 shows the maximum risk of the refined analysis at each receptor, and Table 10 shows the refined maximum cumulative risk. Detailed calculation of risk with respect to individual receptor locations on the project site is included in Appendix B.

As shown, the maximum potential cancer risks to any modeled onsite location is 3.00 per million, which is below the 10 in a million individual source threshold. The modeled locations representing the anticipated location of the amenities center and the outside play area result in a cancer risk of between 2.70 and the maximum 3.00 per million. The combination of risk from all individual sources within the vicinity would determine the cumulative risk at each site. While the unrefined cumulative cancer risk was below the regulatory threshold, the incorporation of the refined modeling for the amenities center results in a further decrease in the cumulative cancer risk. Both the individual and cumulative cancer risk determinations are below the respective thresholds (10 per million for individual and 100 per million for cumulative). Therefore, cancer risk for occupant of the daycare center would be less than significant on an individual as well as cumulative level with respect to onsite as well as offsite emissions.

Table 9: Revised Analysis

Receptor #	*TOC Exhaust*	*TOC Evaporative Loss*	*Diesel*	*Unmitigated Risk*	*>10 per million*
1	3.863E-05	4.827E-06	3.00	3.00	No
2	3.832E-05	4.827E-06	3.00	3.00	No
3	3.768E-05	4.791E-06	3.00	3.00	No
4	3.705E-05	4.791E-06	3.00	3.00	No
5	3.610E-05	4.721E-06	3.00	3.00	No
6	3.198E-05	4.122E-06	2.70	2.70	No
7	3.420E-05	4.439E-06	2.70	2.70	No
8	2.882E-05	3.664E-06	2.40	2.40	No
9	2.818E-05	3.664E-06	2.40	2.40	No
10	2.755E-05	3.629E-06	2.10	2.10	No
11	2.723E-05	3.594E-06	2.10	2.10	No
12	2.628E-05	3.523E-06	2.10	2.10	No
13	2.248E-05	2.924E-06	1.80	1.80	No
14	2.185E-05	2.924E-06	1.80	1.80	No
15	2.153E-05	2.889E-06	1.80	1.80	No
16	2.090E-05	2.854E-06	1.80	1.80	No
17	2.027E-05	2.819E-06	1.80	1.80	No

Source: Atkins 2011

Table 10: Refined Cumulative

Source #	Source ID	$PM_{2.5}$ (>0.8 μg/m^3)	Hazard Index (>10)	Risk (> 100 per mil)
1	Stationary Total	0.041	0.015	19.942
4	101 Freeway	0.262	0.040	3.00
	Total Cumulative	*0.303*	*0.055*	*22.947*
	Significant	***No***	***No***	***No***

Source: Atkins 2011

[a:] Onsite sources represent the 4 potential emergency back-up generators. They are more than 1,000 feet from the existing offsite residential and are therefore negligible risk. Because they will only be operated when the onsite daycare center is not operating, they are considered to have no impact on the daycare center with respect to health risk.

4.2.3 Mitigation Measures

The Project Applicant has indicated that, as part of the operating conditions of the back-up generators, all testing and maintenance operations of the generators will be conducted when the daycare center is not in operation. This will eliminate the potential for these onsite sources to represent an increased health risk for the students of the daycare center. The following mitigation measure is included to ensure implementation of these operating conditions.

MM-HRA.2 As part of the conditions of operation for the onsite back-up generators, all diesel emissions associated with the maintenance and testing of the generators will be conducted at such times as the daycare center is not in operation.

While it is not necessary based on the refined modeling described below, the project applicant may wish to consider implementing MERV 15 or higher rated filters for the amenities building. This would further reduce exposure of daycare students to emissions from US 101. The MERV 15 or higher rated filters have the potential to remove up to 85% of particles of 2.5 microns or greater and would further reduce risk while students were inside the building.

For the purposes of this analysis it was assumed that the generators anticipated at 350 Airport Boulevard would operate under the same conditions as those identified for Airport Boulevard and listed under MM-HRA.2 above. Should these conditions not be applied, additional sources that are not back-up generators be included in the project, or sensitive receptors be sited as part of the refined project, then a full health risk assessment will be required prior to the development of 350 Airport boulevard.

4.3 Conclusion

The Project will be required to implement BAAQMD's Basic Construction Mitigation Measures during construction. Construction activities are not anticipated to impact off-site receptors due to distance and construction of 350 Airport Boulevard is likely not anticipated to impact the daycare center after it is operational. However, should the 300 Airport Boulevard site be constructed in two phases as anticipated, and the amenities center be completely operational during the second phase of construction, there is the potential for significant cancer and non-cancer risk and $PM_{2.5}$ exposure. The refined analysis shows that, unmitigated, cancer risk is anticipated to exceed 41.04 in a million and PM2.5 exposure would exceed 0.38 $\mu g/m^3$, both of which exceed the regulatory thresholds. Non-cancer risk would be less than 0.25 which is well below the regulatory threshold of 1. With the implementation

of Mitigation Measure MM-HRA.1, potential risk and $PM_{2.5}$ exposure are reduced to 8.30 in a million and 0.08 $\mu g/m^3$ respectively, well below the regulatory thresholds. Therefore, the project is less than significant with respect to construction activities.

Onsite operational activities will introduce four new stationary sources in the form of diesel back-up generators. These generators have the potential to impact both onsite and offsite receptors. However, because the generators are located greater than 1,000 feet from the nearest offsite receptor they are not required to be analyzed and therefore are not anticipated to result in significant risk with respect to offsite receptors. With the inclusion of Mitigation Measure MM-HRA.2, the generation of diesel emissions from the maintenance and testing operations of the generators will not occur while the daycare center is open. Therefore, these generators are not anticipated to result in risk or $PM_{2.5}$ concentrations above the regulatory thresholds and were not further analyzed.

There is the potential for the operation of emergency back-up generators at 350 Airport Boulevard, which would represent a potential increased risk for the children at the daycare center located at 300 Airport Boulevard. Back-up generators would not represent a potential risk to off-site residences south of the US 101 because the distance would be greater than 1,000 feet. With the application of Mitigation Measure MM-HRA.2 to 350 Airport Boulevard, potential impacts from back-up generator use would be reduced to less than significant for the daycare center. If these conditions are not to be followed, other sources besides back-up generators are added, or sensitive receptors included in the refined project description for 350 Airport Boulevard, a full health risk assessment shall be conducted prior to development.

The operation of the proposed daycare center within 1,000 feet of three additional offsite stationary sources was determined during the screening analysis to be less than significant for cancer risk, non-cancer risk, and $PM_{2.5}$ concentrations. The screening analysis with respect to the location of the daycare center within 1,000 feet of US 101 resulted in the requirement of refined emissions estimations to determine more accurate cancer risk. Non-cancer risk and $PM_{2.5}$ concentrations were determined by the screening analysis to be less than significant. Based on the refined analysis, location within 1,000 feet of US 101 is anticipated to result in a maximum potential cancer risk of 3.00 per million which is less than the 10 in a million for individual sources. With respect to cumulative risk, the maximum risk before the refined analysis is anticipated at 49.810 per million and after the refined analysis at 22.947 per million, both are well below the cumulative risk threshold of 100 per million. The Project therefore is ***less than significant*** with respect to the emission of or exposure to air toxics and $PM_{2.5}$.

SECTION 5.0 – REFERENCES

Bay Area Air Quality Management District (BAAQMD) *Screening Tables for Air Toxics Evaluation During Construction* version 1.0 May 2010.

BAAQMD *Roadway Screening Analysis Tables*, April 2011.

BAAQMD Highway Screening Tool, April 29, 2011

BAAQMD *California Environmental Quality Act Air Quality Guidelines*, Updated May 2011.

BAAQMD *Recommended Methods for Screening and Modeling Local Risks and Hazards,* May 2011.

BAAQMD *Stationary Source Screening Analysis Tool, San Francisco,* May 2011.

BAAQMD *Screening Analysis Flow Chart*, May 2011.

BAAQMD. Personal Communication James Cordova BAAQMD, September 16, 2011.

California Air Resources Board (CARB). Emfac 2007 Computer Model, Version 2.3, November 1, 2006.

CARB *California Almanac of Emissions and Air Quality,* 2009.

California Environmental Health Tracking Program (CEHTP) Traffic Linkage Service Demonstration Program, accessed from http://www.ehib.org/traffic_tool.jsp. July 26, 2011.

Office of Environmental Health Hazard Assessment. *Air Toxics Hot Spots Program Risk Assessment Guidelines, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments.* October 2003.

U.S. Environmental Protection Agency, CAL3QHCR air dispersion Model. September 1995.

Appendix A

Modeling Assumptions

300/350 Airport Boulevard
Assumptions

300 Airport Blvd.

Operational year	2015	
AADT	238,000	
Peak Hour Traffic	17,200	
AADT (Trucks)[1]	9,068	
% Trucks	3.81%	
Peak Hour Trucks	655	
Conversion from tons to grams	907,184.74	grams/ton
Miles per trip	1.4	

Assumes operation from 7 am to 7 pm only
Assumes construction of Phase 2 occurs during hours of operations of the daycare.
Assumes construction of Phase 2 is 20 months and daycare is open the entire time.
Assumes worst case that children between birth and 2 years are onsite at time of construction.

[1] Truck traffic for 2010 was estimated based on the total vehicle counts and truck traffic provided for 2009.

300 Airport Boulevard
2015 Hourly Emission Rates

2015

	Diesel PM2.5					
	Total VMT		Hourly		Emissions	
Hour	VMT/1000	Normalization	Traffic	tons/hr	gr/hr	g/VMT
24	275000	0.550	361	0.05	45,359	0.16
1	188000	0.376	247	0.02	18,144	0.10
2	207000	0.414	272	0.03	27,216	0.13
3	232000	0.464	305	0.07	63,503	0.27
4	148000	0.296	194	0.04	36,287	0.25
5	227000	0.454	298	0.06	54,431	0.24
6	378000	0.756	496	0.11	99,790	0.26
7	269000	0.538	353	0.08	72,575	0.27
8	404000	0.808	530	0.09	81,647	0.20
9	500000	1.000	656	0.12	108,862	0.22
10	424000	0.848	556	0.11	99,790	0.24
11	463000	0.926	607	0.11	99,790	0.22
12	410000	0.820	538	0.09	81,647	0.20
13	405000	0.810	531	0.1	90,718	0.22
14	332000	0.664	436	0.08	72,575	0.22
15	216000	0.432	284	0.05	45,359	0.21
16	335000	0.670	440	0.08	72,575	0.22
17	176000	0.352	231	0.03	27,216	0.15
18	145000	0.290	191	0.03	27,216	0.19
19	53000	0.106	70	0.01	9,072	0.17
20	202000	0.404	265	0.04	36,287	0.18
21	276000	0.552	362	0.05	45,359	0.16
22	170000	0.340	223	0.02	18,144	0.11
23	58000	0.116	77	0.01	9,072	0.16
Max	500,000					

300 Airport Boulevard
2015 Hourly Emission Rates

TOG								
Total VMT		Hourly	Emissions - Total Exhaust			Emissions - Running		
VMT/1000	Normalization	Traffic	tons/hr	gr/hr	g/VMT	tons/hr	gr/hr	g/VMT
2,137,000	0.143	2,461	0.520	471,736	0.22	0.21	190,509	0.09
797,000	0.053	918	0.230	208,652	0.26	0.09	81,647	0.10
797,000	0.053	918	0.250	226,796	0.28	0.07	63,503	0.08
510,000	0.034	588	0.230	208,652	0.41	0.04	36,287	0.07
931,000	0.062	1,072	0.270	244,940	0.26	0.08	72,575	0.08
1,689,000	0.113	1,945	0.460	417,305	0.25	0.17	154,221	0.09
6,957,000	0.466	8,010	1.570	1,424,280	0.20	0.64	580,598	0.08
14,166,000	0.948	16,311	3.210	2,912,063	0.21	1.69	1,533,142	0.11
13,051,000	0.874	15,027	3.190	2,893,919	0.22	1.60	1,451,496	0.11
8,096,000	0.542	9,322	2.330	2,113,740	0.26	1.18	1,070,478	0.13
8,578,000	0.574	9,877	2.230	2,023,022	0.24	1.24	1,124,909	0.13
10,811,000	0.724	12,448	2.670	2,422,183	0.22	1.59	1,442,424	0.13
11,269,000	0.754	12,975	2.580	2,340,537	0.21	1.74	1,578,501	0.14
11,068,000	0.741	12,744	2.420	2,195,387	0.20	1.52	1,378,921	0.12
12,824,000	0.858	14,765	2.680	2,431,255	0.19	1.73	1,569,430	0.12
13,054,000	0.874	15,030	2.720	2,467,542	0.19	1.80	1,632,933	0.13
13,552,000	0.907	15,604	2.850	2,585,477	0.19	1.83	1,660,148	0.12
14,939,000	1.000	17,200	3.080	2,794,129	0.19	1.92	1,741,795	0.12
10,396,000	0.696	11,970	2.200	1,995,806	0.19	1.37	1,242,843	0.12
7,792,000	0.522	8,972	1.750	1,587,573	0.20	1.03	934,400	0.12
5,955,000	0.399	6,857	1.360	1,233,771	0.21	0.71	644,101	0.11
6,045,000	0.405	6,960	1.250	1,133,981	0.19	0.64	580,598	0.10
4,507,000	0.302	5,190	0.950	861,826	0.19	0.47	426,377	0.09
3,413,000	0.228	3,930	0.790	716,676	0.21	0.39	353,802	0.10
14,939,000								

300 Airport Boulevard
70 Year Average Emissions with Sensitive Weighted Factor

Risk Year	Year	ASF	SWF	VMT	Total Exhaust Emission Factor tons/ day	g/VMT	SWF g/VMT
1	2015	10	0.143	183,333,000	41.81	0.207	0.030
2	2016	10	0.143	185,338,000	39.07	0.191	0.027
3	2017	4.75	0.068	187,522,000	36.22	0.175	0.012
4	2018	3	0.043	189,794,000	33.72	0.161	0.007
5	2019	3	0.043	192,119,000	31.64	0.149	0.006
6	2020	3	0.043	194,476,000	29.88	0.139	0.006
7	2021	3	0.043	196,893,000	28.4	0.131	0.006
8	2022	3	0.043	199,370,000	27.07	0.123	0.005
9	2023	3	0.043	201,903,000	25.93	0.117	0.005
10	2024	3	0.043	204,485,000	24.9	0.110	0.005
11	2025	3	0.043	207,068,000	24.05	0.105	0.005
12	2026	3	0.043	209,562,000	23.47	0.102	0.004
13	2027	3	0.043	212,132,000	22.81	0.098	0.004
14	2028	3	0.043	214,774,000	22.21	0.094	0.004
15	2029	3	0.043	217,513,000	21.48	0.090	0.004
16	2030	3	0.043	220,324,000	21.01	0.087	0.004
17	2031	1.5	0.021	223,000,000	20.58	0.084	0.002
18	2032	1	0.014	225,750,000	20.21	0.081	0.001
19	2033	1	0.014	228,566,000	19.9	0.079	0.001
20	2034	1	0.014	231,460,000	19.63	0.077	0.001
21	2035	1	0.014	234,393,000	19.39	0.075	0.001
22	2036	1	0.014	237,362,000	19.19	0.073	0.001
23	2037	1	0.014	240,330,000	19.06	0.072	0.001
24	2038	1	0.014	243,354,000	18.96	0.071	0.001
25	2039	1	0.014	246,411,000	18.92	0.070	0.001
26	2040	1	0.014	249,515,000	18.91	0.069	0.001
27	2041	1	0.014	249,515,000	18.91	0.069	0.001
28	2042	1	0.014	249,515,000	18.91	0.069	0.001
29	2043	1	0.014	249,515,000	18.91	0.069	0.001
30	2044	1	0.014	249,515,000	18.91	0.069	0.001
31	2045	1	0.014	249,515,000	18.91	0.069	0.001
32	2046	1	0.014	249,515,000	18.91	0.069	0.001
33	2047	1	0.014	249,515,000	18.91	0.069	0.001
34	2048	1	0.014	249,515,000	18.91	0.069	0.001
35	2049	1	0.014	249,515,000	18.91	0.069	0.001
36	2050	1	0.014	249,515,000	18.91	0.069	0.001
37	2051	1	0.014	249,515,000	18.91	0.069	0.001
38	2052	1	0.014	249,515,000	18.91	0.069	0.001
39	2053	1	0.014	249,515,000	18.91	0.069	0.001

300 Airport Boulevard
70 Year Average Emissions with Sensitive Weighted Factor

Risk Year	Year	ASF	SWF	VMT	tons/ day	Total Exhaust Emission Factor g/VMT	SWF g/VMT
40	2054	1	0.014	249,515,000	18.91	0.069	0.001
41	2055	1	0.014	249,515,000	18.91	0.069	0.001
42	2056	1	0.014	249,515,000	18.91	0.069	0.001
43	2057	1	0.014	249,515,000	18.91	0.069	0.001
44	2058	1	0.014	249,515,000	18.91	0.069	0.001
45	2059	1	0.014	249,515,000	18.91	0.069	0.001
46	2060	1	0.014	249,515,000	18.91	0.069	0.001
47	2061	1	0.014	249,515,000	18.91	0.069	0.001
48	2062	1	0.014	249,515,000	18.91	0.069	0.001
49	2063	1	0.014	249,515,000	18.91	0.069	0.001
50	2064	1	0.014	249,515,000	18.91	0.069	0.001
51	2065	1	0.014	249,515,000	18.91	0.069	0.001
52	2066	1	0.014	249,515,000	18.91	0.069	0.001
53	2067	1	0.014	249,515,000	18.91	0.069	0.001
54	2068	1	0.014	249,515,000	18.91	0.069	0.001
55	2069	1	0.014	249,515,000	18.91	0.069	0.001
56	2070	1	0.014	249,515,000	18.91	0.069	0.001
57	2071	1	0.014	249,515,000	18.91	0.069	0.001
58	2072	1	0.014	249,515,000	18.91	0.069	0.001
59	2073	1	0.014	249,515,000	18.91	0.069	0.001
60	2074	1	0.014	249,515,000	18.91	0.069	0.001
61	2075	1	0.014	249,515,000	18.91	0.069	0.001
62	2076	1	0.014	249,515,000	18.91	0.069	0.001
63	2077	1	0.014	249,515,000	18.91	0.069	0.001
64	2078	1	0.014	249,515,000	18.91	0.069	0.001
65	2079	1	0.014	249,515,000	18.91	0.069	0.001
66	2080	1	0.014	249,515,000	18.91	0.069	0.001
67	2081	1	0.014	249,515,000	18.91	0.069	0.001
68	2082	1	0.014	249,515,000	18.91	0.069	0.001
69	2083	1	0.014	249,515,000	18.91	0.069	0.001
70	2084	1	0.014	249,515,000	18.91	0.069	0.001
Sum							0.188
70 year conversion factor							0.908

300 Airport Boulevard
70 Year Average Emissions with Sensitive Weighted Factor

	Evaporative Loss Emission Factor				Diesel Emission Factor		
Risk Year	tons/day	g/VMT	SWF g/VMT	VMT	tons/ day	g/VMT	SWF g/VMT
1	23.75	0.118	0.017	6,501,000	1.52	0.212	0.030
2	23.02	0.113	0.016	6,565,000	1.40	0.193	0.028
3	22.32	0.108	0.007	6,630,000	1.29	0.177	0.012
4	21.66	0.104	0.004	6,693,000	1.18	0.160	0.007
5	21.12	0.100	0.004	6,756,000	1.10	0.148	0.006
6	20.61	0.096	0.004	6,815,000	1.03	0.137	0.006
7	20.14	0.093	0.004	6,867,000	0.97	0.128	0.005
8	19.69	0.090	0.004	6,911,000	0.91	0.119	0.005
9	19.26	0.087	0.004	6,957,000	0.87	0.113	0.005
10	18.83	0.084	0.004	7,004,000	0.83	0.108	0.005
11	18.45	0.081	0.003	7,046,000	0.80	0.103	0.004
12	18.11	0.078	0.003	7,093,000	0.76	0.097	0.004
13	17.79	0.076	0.003	7,136,000	0.75	0.095	0.004
14	17.5	0.074	0.003	7,184,000	0.72	0.091	0.004
15	17.21	0.072	0.003	7,241,000	0.71	0.089	0.004
16	16.92	0.070	0.003	7,306,000	0.70	0.087	0.004
17	16.56	0.067	0.001	7,373,000	0.69	0.085	0.002
18	16.24	0.065	0.001	7,444,000	0.70	0.085	0.001
19	15.94	0.063	0.001	7,517,000	0.69	0.083	0.001
20	15.71	0.062	0.001	7,591,000	0.69	0.082	0.001
21	15.5	0.060	0.001	7,666,000	0.69	0.082	0.001
22	15.37	0.059	0.001	7,737,000	0.70	0.082	0.001
23	15.28	0.058	0.001	7,806,000	0.70	0.081	0.001
24	15.18	0.057	0.001	7,877,000	0.71	0.082	0.001
25	15.1	0.056	0.001	7,948,000	0.71	0.081	0.001
26	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
27	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
28	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
29	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
30	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
31	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
32	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
33	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
34	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
35	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
36	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
37	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
38	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
39	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001

300 Airport Boulevard
70 Year Average Emissions with Sensitive Weighted Factor

	Evaporative Loss Emission Factor				Diesel Emission Factor		
Risk Year	**tons/day**	**g/VMT**	**SWF g/VMT**	**VMT**	**tons/ day**	**g/VMT**	**SWF g/VMT**
40	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
41	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
42	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
43	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
44	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
45	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
46	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
47	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
48	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
49	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
50	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
51	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
52	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
53	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
54	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
55	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
56	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
57	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
58	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
59	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
60	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
61	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
62	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
63	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
64	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
65	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
66	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
67	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
68	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
69	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
70	15.04	0.055	0.001	8,022,000	0.71	0.080	0.001
Sum			0.131				0.196
70 year conversion factor			1.114				0.924

300 Airport Boulevard
Traffic Counts - Total Vehicles

Total Vehicles

Dist	Route	CO	Postmile	Description	Back Peak Hour	Back Peak Month	Back AADT	Ahead Peak Hour	Ahead Peak Month	Ahead AADT
4	101	SM	0	SANTA CLARA/S MATEO CO LINE				13,200	196,000	189,000
4	101	SM	0.89	EAST PALO ALTO, UNIVERSITY	13,200	196,000	189,000	13,200	195,000	188,000
4	101	SM	1.869	JCT. RTE. 114	13,200	195,000	188,000	12,600	187,000	180,000
4	101	SM	3.592	MENLO PARK, MARSH RD	12,600	187,000	180,000	14,500	208,000	201,000
4	101	SM	5.385	REDWOOD CITY, JCT. RTE. 84	14,500	208,000	201,000	14,500	208,000	202,000
4	101	SM	6.623	REDWOOD CITY, WHIPPLE AVE	14,500	208,000	202,000	15,400	221,000	214,000
4	101	SM	8.401	HOLLY ST	15,400	221,000	214,000	15,400	221,000	214,000
4	101	SM	9.552	BELMONT, RALSTON AVE	15,400	221,000	214,000	16,200	233,000	226,000
4	101	SM	11.147	SAN MATEO, EAST HILLSDALE	16,200	233,000	226,000	16,200	232,000	225,000
4	101	SM	11.895	SAN MATEO, JCT. RTE. 92	16,200	232,000	225,000	18,100	255,000	250,000
4	101	SM	12.69	SAN MATEO, KEHOE AVE	18,100	260,000	250,000	18,000	258,000	248,000
4	101	SM	13.461	SAN MATEO, THIRD AVE	18,000	254,000	248,000	17,900	257,000	247,000
4	101	SM	14.33	SAN MATEO, POPLAR/DORE	17,900	257,000	247,000	17,200	248,000	238,000
4	101	SM	14.69	SAN MATEO, PENINSULA AVE	17,200	248,000	238,000	17,300	249,000	239,000
4	101	SM	16.575	BURLINGAME, BRDWAY	17,300	249,000	239,000	17,200	248,000	238,000
4	101	SM	17.947	MILLBRAE, MILLBRAE AVE	17,200	248,000	238,000	16,000	230,000	221,000
4	101	SM	19.12	SAN FRANCISCO AIRPORT	16,000	230,000	221,000	16,800	242,000	232,000
4	101	SM	20.719	S SAN FRANCISCO, JCT RTE 380 W	16,800	242,000	232,000	16,800	242,000	232,000
4	101	SM	21.691	SB OFF TO PRODUCE/AIRPORT	16,800	242,000	232,000	15,500	223,000	214,000
4	101	SM	21.915	S SAN FRANCISCO, GRAND AVE	15,500	223,000	214,000	15,900	229,000	220,000
4	101	SM	22.713	S SAN FRANCISCO, OYSTER POINT	15,900	229,000	220,000	15,700	225,000	216,000
4	101	SM	23.393	S SAN FRANCISCO, OLD BAYSHORE	14,900	212,000	204,000	13,900	205,000	196,000
4	101	SM	25.7	BRISBANE, CANDLESTICK PARK	13,900	205,000	196,000	14,000	206,000	197,000
4	101	SM	26.107	SAN FRANCISCO/S MATEO CO LINE	14,000	206,000	197,000			

Source: California Department of Transportation 2010. *Annual Average Daily traffic (AADT) for 2010.*

300 Airport Boulevard
Traffic Counts - Total Trucks

Trucks

Route	District	County	Postmile	Leg	AADT Total	Total Trucks	Total Trucks %	2 Axle Volume	2 Axle Percent	3 Axle Volume	3 Axle Percent	4 Axle Volume	4 Axle Percent	5 Axle Volume	5 Axle Percent
101	4	SM	1.869	B	191000	8079	4.23	4917	60.86	657	8.13	368	4.56	2137	26.45
101	4	SM	5.385	B	193000	8685	4.5	5029	57.9	888	10.23	276	3.18	2491	28.68
101	4	SM	5.385	A	189000	8505	4.5	5105	60.02	1276	15	263	3.09	1861	21.88
101	4	SM	6.623	A	195000	9536	4.89	5839	61.23	1131	11.86	451	4.73	2115	22.18
101	4	SM	11.895	B	218000	7041	3.23	4139	58.78	687	9.76	270	3.84	1945	27.62
101	4	SM	11.895	A	237000	8271	3.49	4750	57.43	908	10.98	168	2.03	2445	29.56
101	4	SM	13.461	A	232000	10254	4.42	6069	59.19	957	9.33	549	5.35	2678	26.12
101	4	SM	13.461	B	236000	8992	3.81	5536	61.57	787	8.75	441	4.9	2228	24.78
101	4	SM	17.947	B	226000	9944	4.4	6011	60.45	770	7.74	394	3.96	2769	27.85
101	4	SF	0.774	A	196000	9055	4.62	4771	52.69	1490	16.45	236	2.61	2558	28.25

Source: California Department of Transportation 2010. *Annual Average Daily Truck Traffic for 2009.*

300 Airport Boulevard
CAL3QHCR Input

File Name:	'300APpm' '300APtoc' '300APrun'
Averaging Time (min)	60
Surface Roughmeess, cm/s	170
Setting	0
Deposition Velocity	0
Number of Receptors	17
Conversion from meters to ft	0.3048
Output unit flag:	1
Start Date of project	1 1 15
End Date of project	12 31 15
met surace station number	6801
met surface year	05
met upper station number	6801
met upper year	05
link contribution	1
table of concentrations	1
site setting	U

Receptor Table:

	Receptor Label	Receptor Coordinants		
		X	Y	Z
1	Rec01	-500	750	6
2	Rec02	-250	750	6
3	Rec03	-50	750	6
4	Rec04	100	750	6
5	Rec05	300	750	6
6	Rec06	-50	875	6
7	Rec07	100	810	6
8	Rec08	-500	993	6
9	Rec09	-250	993	6
10	Rec10	-50	993	6
11	Rec11	100	993	6
12	Rec12	300	993	6
13	Rec13	-500	1236	6
14	Rec14	-250	1236	6
15	Rec15	-50	1236	6
16	Rec16	100	1236	6
17	Rec17	300	1236	6

Tier	2	
Pollutant Type	P	
ETS Data set (no clue what this mea	1 1 1 1 1 1 1	
link definition	101 Broadway Ahead and Penissula Back	
number of links to be processed	2	
link number	1	
link type	1	
link name	101 Broadway Ahead Peak	
link type	AG	
Link Start (x,y in feet)	-5000,0	1000,0
Link end (x,y in feet)	1000,0	5000,4100
source height (0 for AG)	0	
Mixing zone width (in feet)	160	
Hour number	1	2
Ambient concentration	0	0

Source info (PM)

	Link 1			Link 2		
	Hour number	**hourly traffic**	**gr/ vehicle mile**	**Hour number**	**hourly traffic**	**gr/ vehicle mile**
	1	361	0.16	1	361	0.16
	2	247	0.10	2	247	0.10
	3	272	0.13	3	272	0.13
	4	305	0.27	4	305	0.27
	5	194	0.25	5	194	0.25
	6	298	0.24	6	298	0.24
	7	496	0.26	7	496	0.26
	8	353	0.27	8	353	0.27
	9	530	0.20	9	530	0.20
	10	656	0.22	10	656	0.22
	11	556	0.24	11	556	0.24
	12	607	0.22	12	607	0.22
	13	538	0.20	13	538	0.20
	14	531	0.22	14	531	0.22
	15	436	0.22	15	436	0.22
	16	284	0.21	16	284	0.21
	17	440	0.22	17	440	0.22
	18	231	0.15	18	231	0.15
	19	191	0.19	19	191	0.19
	20	70	0.17	20	70	0.17
	21	265	0.18	21	265	0.18
	22	362	0.16	22	362	0.16
	23	223	0.11	23	223	0.11
	24	77	0.16	24	77	0.16

Source info (TOC exhaust)

Link 1			Link 2		
Hour number	**hourly traffic**	**gr/ vehicle mile**	**Hour number**	**hourly traffic**	**gr/ vehicle mile**
1	2,461	0.22	1	2461	0.22
2	918	0.26	2	918	0.26
3	918	0.28	3	918	0.28
4	588	0.41	4	588	0.41
5	1,072	0.26	5	1072	0.26
6	1,945	0.25	6	1945	0.25
7	8,010	0.20	7	8010	0.20
8	16,311	0.21	8	16311	0.21
9	15,027	0.22	9	15027	0.22
10	9,322	0.26	10	9322	0.26
11	9,877	0.24	11	9877	0.24
12	12,448	0.22	12	12448	0.22
13	12,975	0.21	13	12975	0.21
14	12,744	0.20	14	12744	0.20
15	14,765	0.19	15	14765	0.19
16	15,030	0.19	16	15030	0.19
17	15,604	0.19	17	15604	0.19
18	17,200	0.19	18	17200	0.19
19	11,970	0.19	19	11970	0.19
20	8,972	0.20	20	8972	0.20
21	6,857	0.21	21	6857	0.21
22	6,960	0.19	22	6960	0.19
23	5,190	0.19	23	5190	0.19
24	3,930	0.21	24	3930	0.21

Source info (TOC running)

	Link 1			Link 2	
Hour number	**hourly traffic**	**gr/ vehicle mile**	**Hour number**	**hourly traffic**	**gr/ vehicle mile**
1	2,461	0.09	1	2461	0.09
2	918	0.10	2	918	0.10
3	918	0.08	3	918	0.08
4	588	0.07	4	588	0.07
5	1,072	0.08	5	1072	0.08
6	1,945	0.09	6	1945	0.09
7	8,010	0.08	7	8010	0.08
8	16,311	0.11	8	16311	0.11
9	15,027	0.11	9	15027	0.11
10	9,322	0.13	10	9322	0.13
11	9,877	0.13	11	9877	0.13
12	12,448	0.13	12	12448	0.13
13	12,975	0.14	13	12975	0.14
14	12,744	0.12	14	12744	0.12
15	14,765	0.12	15	14765	0.12
16	15,030	0.13	16	15030	0.13
17	15,604	0.12	17	15604	0.12
18	17,200	0.12	18	17200	0.12
19	11,970	0.12	19	11970	0.12
20	8,972	0.12	20	8972	0.12
21	6,857	0.11	21	6857	0.11
22	6,960	0.10	22	6960	0.10
23	5,190	0.09	23	5190	0.09
24	3,930	0.10	24	3930	0.10

Bay Area Air Quality Management District
Risk & Hazard Stationary Source Inquiry Form

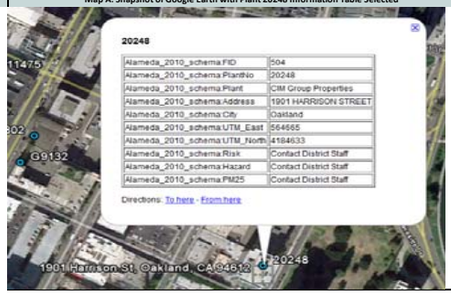
This form is required when users request stationary source data from BAAQMD. This form is to be used with the BAAQMD's Google Earth stationary source screening tables.
For guidance on conducting a risk & hazard screening, including for roadways & freeways, refer to the District's Risk & Hazard Analysis flow chart. Also see the District's Recommended Methods for Screening and Modeling Local Risks and Hazards document.

Table A: Requestor Contact Information	
Contact Name:	Heather M. Dubois
Affiliation:	Atkins
Phone:	909-890-5951
Email:	heather.dubois@atkinsglobal.com
Date of Request	8/12/2011
Project Name:	300 Airport Boulevard
Address:	300/350 Airport Boulevard
City:	Burlingame, CA
County:	San Mateo
Type (residential, commercial, mixed use, industrial, etc.):	Mixed use (sensitive receptor is a daycare center)
Project size (# of units, or building square feet):	767,000 square feet (sf) of new uses
Comments:	

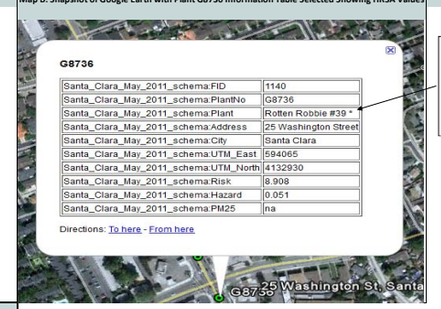
For Air District assistance, the following steps must be completed:

1. Complete all the contact and project information requested in Table A. Incomplete forms will not be processed. Please include a project site map.
2. Download and install the free program Google Earth, http://www.google.com/earth/download/ge/, and then download the county specific Google Earth stationary source application files (dated May 2011) from the District's website, http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx. The small points on the map represent stationary sources permitted by the District (Map A on right). These permitted sources include diesel back-up generators, gas stations, dry cleaners, boilers, printers, auto spray booths, etc. Click on a point to view the source's Information Table, including the name, location, and preliminary estimated cancer risk, hazard index, and PM2.5 concentration.
3. Find the project site in Google Earth by inputting the site's address in the Google Earth search box.
4. Using the Google Earth ruler function, measure the distance in feet between the project's fenceline and the stationary source's fenceline for all the sources that are within 1,000 feet of the project's fenceline. Verify that the location of the source on the map matches with the source's address in the Information Table, by using the Google Earth address search box to confirm that the source is within 1,000 feet of the project. Please report any mapping errors to the District (District contact information in Step 8).
5. If the stationary source is within 1,000 feet of the project's fenceline and the stationary source's information table does not list the cancer risk, hazard index, and PM2.5 concentration, and instead says to "Contact District Staff", list the stationary source information in Table B Section 1 below.
6. Note that a small percentage of the stationary sources have Health Risk Screening Assessment (HRSA) data INSTEAD of screening level data. These sources will be noted by an asterisk next to the Plant Name (Map B on right). If HRSA values are presented, these values have already been modeled and cannot be adjusted further.
7. Email this completed form to District staff (Step 8). District staff will provide the most recent risk, hazard, and PM2.5 data that are available for the source(s). If this information or data are not available, source emissions data will be provided. Staff will respond to inquiries within three weeks.
8. **Submit forms, maps, and questions to Andrea Gordon at 415-749-4940, or agordon@baaqmd.gov**

Map A: Snapshot of Google Earth with Plant 20248 Information Table Selected



Map B: Snapshot of Google Earth with Plant G8736 Information Table Selected Showing HRSA Values



Note the asterisk next to the plant name. This means that the values that appear below are from the HRSA. These values cannot be further adjusted using our screening tools, such as the diesel multiplier sheet. These values are based on modeling. If the Information Table says "Contact District Staff" include in Table B below.

Table B Section 1: Requestor fills out these columns based on Google Earth data | **Table B Section 2: BAAQMD returns form with additional information in these columns as needed**

						BAAQMD Single Source Thresholds 10 in a million	1.0 Hazard Index	0.3 ug/m3													
Distance from Receptor (feet)	**Plant # or Gas Dispensary #**	**Facility Name**	**Street Address**	**UTM East**	**UMT North**	**Screening Level Cancer Risk (1)**	**Screening Level Hazard Index (1)**	**Screening Level PM2.5 (1)**	**Permit #s (2)**	**Source #s (2)**	**Fuel Code (3)**	**Type of Source(s) (4)**	**HRSA Ap # (5)**	**HRSA Date (6)**	**HRSA Engineer (7)**	**HRSA Cancer Risk in a million**	**Age Sensitivity Factor (8)**	**HRSA Adjusted Cancer Risk**	**HRSA Chronic Health (9)**	**HRSA PM2.5 Risk**	**Status/Comments**
300	17695	Virgin America	555 Airport Boulevard	558345	4160409	18.04	0.006	0.032	Permit # 14376	1	98	Diesel engine - standby	14237	5/11/2006	CSF	1.76	1.7	2.992	No chronic health risk	0.00937931	
900	14464	City of Burlingame	399 Rollins Road	558430	4160130	15.06	0.005	0.003	Permit #5431	1	98	Diesel engine	5431	11/21/2002	DYC	5.5	1.7	9.35	No chronic health risk	0.029310345	

Footnotes:

1. These Cancer Risk, Hazard Index, and PM2.5 columns represent the rows in the Google Earth Plant Information Table that say "Contact District Staff" (Map A above). BAAQMD will return this form to you with this screening level information entered in these columns.
2. Each plant may have multiple permits and sources.
3. Fuel codes: 98 = diesel, 189 = Natural Gas.
4. Permitted sources include diesel back-up generators, gas stations, dry cleaners, boilers, printers, auto spray booths, etc.
5. If a Health Risk Screening Assessment (HRSA) was completed for the source, the application number will be listed here.
6. The date that the HRSA was completed.
7. Engineer who completed the HRSA. For District purposes only.
8. All HRSA completed before 1/5/2010 need to be multiplied by an age sensitivity factor of 1.7.
9. The HRSA "Chronic Health" number represents the Hazard Index.
10. Further information about common sources:
    a. Sources that only include diesel internal combustion engines can be adjusted using the BAAQMD's Diesel Multiplier worksheet.
    b. The risk from natural gas boilers used for space heating when <25 MM BTU/hr would have an estimated cancer risk of one in a million or less, and a chronic hazard index of 0.003 or less. To be conservative, requestor should assume the cancer risk is 1 in a million and the hazard index is 0.003 for these sources.
    c. BAAQMD Reg 11 Rule 16 required that all co-residential (sharing a wall, floor, ceiling or is in the same building as a residential unit) dry cleaners cease use of perc on July 1, 2010. Therefore, there is no cancer risk, hazard or PM2.5 concentrations from co-residential dry cleaning businesses in the BAAQMD.
    d. Non co-residential dry cleaners must phase out use of perc by Jan. 1, 2023. Therefore, the risk from these dry cleaners does not need to be factored in over a 70-year period, but instead should reflect the number of years perc use will continue after the project's residents or other sensitive receptors (such as students, patients, etc) take occupancy.
    e. Gas stations can be adjusted using BAAQMD's Gas Station Distance Mulitplier worksheet.
    f. Unless otherwise noted, exempt sources are considered insignificant. See BAAQMD Reg 2 Rule 1 for a list of exempt sources.
    g. This spray booth is considered to be insignificant.

Appendix B

Risk and Concentrations

Screening Results

300 Airport Boulevard

Construction Impact to Offsite Receptors

Project Information

Type Commercial
units N/A
acerage 18.13

Nearest Sensitive Receptor (meters) 255
Minimum offsite distance (meters) required from porject fence line to ensure that a sensitive receptor would have a less than significant impact from table: **225**
Potentially Significant? **No**

Type	Units/sqft	Project Site (acres)	DPM		PM2.5	Offset Required for Combined Risk
			Cancer Risk	Chronic Hazard Index	Annual Average Conc. ($\mu g/m^3$)	
Residential	5	1.7	95	7	75	95
	10	3.3	100	7	75	100
	25	8.3	125	16	100	125
	50	16.7	150	18	125	150
	100	33.3	175	20	150	175
	250	83.3	300	25	250	300
	500	166.7	400	35	300	400
	1,000	333.3	500	40	600	600
	2,000	666.7	700	45	900	900
	5,000	1666.7	1000	40	800	1000
Commercial	5,000	0.2	100	8	75	100
	10,000	0.5	100	8	75	100
	30,000	1.4	100	8	80	100
	60,000	2.8	100	9	85	100
	100,000	4.6	150	19	125	150
	300,000	13.8	200	25	150	200
	500,000	23.0	225	19	175	225
	1,000,000	45.9	300	25	200	300
	3,000,000	137.7	500	35	400	500
	7,000,000	321.4	600	35	400	600
Industrial	5,000	0.2	100	10	85	100
	10,000	0.5	100	10	85	100
	30,000	1.4	100	10	90	100
	60,000	2.8	100	11	95	100
	100,000	4.6	175	20	125	175
	300,000	13.8	200	25	175	200
	500,000	23.0	250	20	175	250
	1,000,000	45.9	300	25	200	300
	3,000,000	137.7	500	35	400	500
	6,000,000	275.5	600	35	400	600

Source: BAAQMD *Screening Tabes for Air Toxics Evaluation During Construction, May 2011.*

300 Airport Boulevard

Operation - Impacts to On and Offsite Receptors

Roadway Sources				
Street	***Distance (ft)*** [a]	***$PM_{2.5}$ (>0.3 $\mu g/m^3$)*** [1]	***Hazard Quotient (> 1)***	***Risk (> 10 per mil.)*** [2]
101 Freeway	500	0.268	0.041	30.56
	685	0.262	0.040	29.868
	750	0.260	0.04	29.625
Significant	-	*No*	*No*	*Yes*

Sources:

Distance: Of 500 & 700 feet are the closest distances represented in the screening

Distance: Of 685 feet is the actual distance to the site. Values at the site distance is extrapolated from the screening tool values based on BAAQMD methodology.

BAAQMD Recommended Methods for Screening and Modeling Local Risks and Hazards, May 2011.

Risk and Concentration: BAAQMD *Highway Screening Tool* , April 29, 2011.

Notes:

All maximum acute and chronic hazard index for the distances shown in the screening tables will be below 0.02 $\mu g/m^3$.

Stationary Sources				
Source #	**Source ID**	**$PM_{2.5}$ (>0.3 $\mu g/m^3$)**	**Hazard Index (>1)**	**Risk (> 10 per mil)**
1	17695	0.009	0.006	2.992
2	14464	0.029	0.005	9.350
3	16542	0.002	0.003	7.6
4	350 Airport[a]	0.000	0.000	0.000
5	Onsite[b]	0.000	0.000	0.000
	Significant	***No***	***No***	***No***

Sources:

BAAQMD *Stationary Source Screening Analysis Tool, San Mateo,* May 2011.

a 350 Airport assumes same restrictions as 300 Airport boulevard with respect to onsite back-up generators.

[b] Onsite sources represent the 4 potential emergency back-up generators. They are more than 1,000 feet from the existing off-site residential and are therefore negligible risk. Because they will only be operated when the on-site daycare center is not operating, they are considered to have no impact on the daycare center with respect to health rish.

NA = "NA" is in the screening level column for a gas station, it means no significant risk.

300 Airport Boulevard

Operation - Impacts to On and Offsite Receptors

Cumulative				
Source #	Source ID	$PM_{2.5}$ ($\mu g/m^3$)	Index (>10)	Risk mil)
1	17695	0.009	0.006	2.992
2	14464	0.029	0.005	9.350
3	16542	0.002	0.003	7.6
4	350 airport[a]	0.000	0.000	0.000
5	Onsite[b]	0.000	0.000	0.000
	Subtotal	0.041	0.015	19.942
	101 Freeway	0.262	0.040	29.868
Total Cumulative		*0.303*	*0.055*	*49.810*
Significant		***No***	***No***	***No***

Source: Atkins 2011

[a] 350 Airport assumes same restrictions as 300 Airport boulevard with respect to onsite back-up generators.

[b] Onsite sources represent the 4 potential emergency back-up generators. They are more than 1,000 feet from the existing off-site residential and are therefore negligible risk. Because they will only be operated when the on-site daycare center is not operating, they are considered to have no impact on the daycare center with respect to health risk.

350 Airport Boulevard

Construction Impact to Offsite Receptors

Project Information

Type Commercial
units N/A
acerage 9.3

Nearest Sensitive Receptor (meters) 203
Minimum offsite distance (meters) required from porject fence line to ensure that a sensitive receptor would have a less than significant impact from table: **200**
Potentially Significant? **No**

Type	Units/sqft	Project Site (acres)	DPM		PM2.5	Offset Required for Combined Risk
			Cancer Risk	Chronic Hazard Index	Annual Average Conc. ($\mu g/m^3$)	
Residential	5	1.7	95	7	75	95
	10	3.3	100	7	75	100
	25	8.3	125	16	100	125
	50	16.7	150	18	125	150
	100	33.3	175	20	150	175
	250	83.3	300	25	250	300
	500	166.7	400	35	300	400
	1,000	333.3	500	40	600	600
	2,000	666.7	700	45	900	900
	5,000	1666.7	1000	40	800	1000
Commercial	5,000	0.2	100	8	75	100
	10,000	0.5	100	8	75	100
	30,000	1.4	100	8	80	100
	60,000	2.8	100	9	85	100
	100,000	4.6	150	19	125	150
	300,000	13.8	200	25	150	200
	500,000	23.0	225	19	175	225
	1,000,000	45.9	300	25	200	300
	3,000,000	137.7	500	35	400	500
	7,000,000	321.4	600	35	400	600
Industrial	5,000	0.2	100	10	85	100
	10,000	0.5	100	10	85	100
	30,000	1.4	100	10	90	100
	60,000	2.8	100	11	95	100
	100,000	4.6	175	20	125	175
	300,000	13.8	200	25	175	200
	500,000	23.0	250	20	175	250
	1,000,000	45.9	300	25	200	300
	3,000,000	137.7	500	35	400	500
	6,000,000	275.5	600	35	400	600

Source: BAAQMD *Screening Tabes for Air Toxics Evaluation During Construction, May 2011.*

350 Airport Boulevard

Operation - Impacts to On and Offsite Receptors

There are no onsite receptors that will be impacted by existing offsite sources.

There is the potential for onsite generators to be present. However these back-up generators will be assumed to operate with the same restrictions as 300 Airport Boulevard and are included in the screening analysis for 300 Airport boulevard.

Refined Modeling Results

300 Airport Boulevard
Refined Modeling Summary

Operational

Receptor #	*Receptor type*	*TOC Exhaust*	*TOC Evaporative Loss*	*Diesel*	*Unmitigated Risk*	*>10 per million*
1	child	3.863E-05	4.827E-06	3.00	3.00	No
2	child	3.832E-05	4.827E-06	3.00	3.00	No
3	child	3.768E-05	4.791E-06	3.00	3.00	No
4	child	3.705E-05	4.791E-06	3.00	3.00	No
5	child	3.610E-05	4.721E-06	3.00	3.00	No
6	child	3.198E-05	4.122E-06	2.70	2.70	No
7	child	3.420E-05	4.439E-06	2.70	2.70	No
8	child	2.882E-05	3.664E-06	2.40	2.40	No
9	child	2.818E-05	3.664E-06	2.40	2.40	No
10	child	2.755E-05	3.629E-06	2.10	2.10	No
11	child	2.723E-05	3.594E-06	2.10	2.10	No
12	child	2.628E-05	3.523E-06	2.10	2.10	No
13	child	2.248E-05	2.924E-06	1.80	1.80	No
14	child	2.185E-05	2.924E-06	1.80	1.80	No
15	child	2.153E-05	2.889E-06	1.80	1.80	No
16	child	2.090E-05	2.854E-06	1.80	1.80	No
17	child	2.027E-05	2.819E-06	1.80	1.80	No

Source: Atkins 2011

300 Airport Boulevard
Refined Modeling Summary

Construction

Receptor #	*Receptor type*	*Unmitigated*	*Significant?*	*Mitigation HRA-1*	*Significant?*
Cancer Risk (threshold >10 per million)					
3	child	56.31	YES	8.45	No
4	child	41.04	YES	41.04	YES
6	child	102.53	YES	15.38	YES
7	child	51.30	YES	51.30	YES
18	child	78.66	YES	11.80	YES
19	child	133.02	YES	19.95	YES
20	child	55.31	YES	8.30	No
Non-Cancer Risk (threshold >1)					
3	child	0.10	No	0.02	No
4	child	0.08	No	0.08	No
6	child	0.19	No	0.03	No
7	child	0.09	No	0.09	No
18	child	0.15	No	0.02	No
19	child	0.25	No	0.04	No
20	child	0.10	No	0.02	No
$PM_{2.5}$ (threshold >0.3 $\mu g/m^3$)					
3	child	0.52	Yes	0.08	No
4	child	0.38	Yes	0.38	Yes
6	child	0.95	Yes	0.14	No
7	child	0.47	Yes	0.47	Yes
18	child	0.73	Yes	0.11	No
19	child	1.23	Yes	0.18	No
20	child	0.51	Yes	0.08	No

Source: Atkins 2011

Risk Calculations

Health Risk Assessment
300 Airport Boulevard
Construction Cancer Risk - 12 hour exposure

Receptor Type	Receptor #	emission factor	Modeled emissions	70yr ($\mu g/m^3$)	Daily breathing rate (DBR) (L/kg bw-day)	Inhalation absorption factor	Exposure frequency (EF) (days/year)	Exposure Duration (ED) (years)	Conversion factor ($1x10^{-6}$)	Averaging period (AT) (days)	Dose	Cancer Potency Value	CRAF	Cancer Risk	Significant?
DPM Unmitigated															
Daycare	3	3.31E-07	1567352.75	0.51942	581	1	260	1.667	0.000001	25550	5.12E-06	1.1	10.00	56.31	YES
Daycare	4	3.31E-07	1142251.88	0.37854	581	1	260	1.667	0.000001	25550	3.73E-06	1.1	10	41.04	YES
Daycare	6	3.31E-07	2853801.25	0.94575	581	1	260	1.667	0.000001	25550	9.32E-06	1.1	10	102.53	YES
Daycare	7	3.31E-07	1427783.88	0.47317	581	1	260	1.667	0.000001	25550	4.66E-06	1.1	10	51.30	YES
Daycare	18	3.31E-07	2189437.5	0.72558	581	1	260	1.667	0.000001	25550	7.15E-06	1.1	10	78.66	YES
Daycare	19	3.31E-07	3702417.25	1.22698	581	1	260	1.667	0.000001	25550	1.21E-05	1.1	10	133.02	YES
Daycare	20	3.31E-07	1539517.25	0.51020	581	1	260	1.667	0.000001	25550	5.03E-06	1.1	10	55.31	YES

Emission Factor:

Emissions, lbs/day	Source Area, m^2	Emissions Rate, g/s-m^2
1.84	29,152.70	0.00000033

* maximum pounds per day taken from the AQ URBEMIS modeling.

Mitigation: Limit time outdoors to 0% of the day and include a MERV 15 or better rated filter.
MERV 15 filter reduces particulate matter by a minimum of 85%.
Air Intake is located at the receptor site modeled.

Mitigation Option 1														
Daycare	3	0.0779131	581	1	260	1.667	0.000001	25550	7.68E-07	1.1	10	8.4469	No
Daycare	4	0.37854	581	1	260	1.667	0.000001	25550	3.73E-06	1.1	10	41.0394	YES
Daycare	6	0.1418625	581	1	260	1.667	0.000001	25550	1.40E-06	1.1	10	15.3799	YES
Daycare	7	0.47317	581	1	260	1.667	0.000001	25550	4.66E-06	1.1	10	51.2982	YES
Daycare	18	0.1088369	581	1	260	1.667	0.000001	25550	1.07E-06	1.1	10	11.7995	YES
Daycare	19	0.1840472	581	1	260	1.667	0.000001	25550	1.81E-06	1.1	10	19.9534	YES
Daycare	20	0.0765294	581	1	260	1.667	0.000001	25550	7.54E-07	1.1	10	8.2969	No

Health Risk Assessment
300 Airport Boulevard
Construction Non-Cancer Risk

Receptor #	Annual DPM (mg/m3)	Reference Level	Non-Cancer Risk	Significant?
Unmitigated				
3	0.51942	5	0.103884	No
4	0.37854	5	0.075708	No
6	0.94575	5	0.189150	No
7	0.47317	5	0.094634	No
18	0.72558	5	0.145116	No
19	1.22698	5	0.245396	No
20	0.51020	5	0.102039	No

3	0.07791	5	0.015583	No
4	0.37854	5	0.075708	No
6	0.14186	5	0.028372	No
7	0.47317	5	0.094634	No
18	0.10884	5	0.021767	No
19	0.18405	5	0.036809	No
20	0.07653	5	0.015306	No

PM2.5 Concentrations
300 Airport Boulevard
Construction

	Receptor #	emission factor	µg/m^3 (using Emission Factor of 1)	Annual DPM (µg/m^3)	Significant?
Unmitigated	3	3.31E-07	1567352.75	0.5194207	**Yes**
	4	3.314E-07	1142251.88	0.3785423	**Yes**
	6	3.314E-07	2853801.25	0.9457497	**Yes**
	7	3.314E-07	1427783.88	0.4731676	**Yes**
	18	3.314E-07	2189437.5	0.7255796	**Yes**
	19	3.314E-07	3702417.25	1.2269811	**Yes**
	20	3.314E-07	1539517.25	0.510196	**Yes**
Mitigated	3			0.0779131	No
	4			0.3785423	**Yes**
	6			0.1418625	No
	7			0.4731676	**Yes**
	18			0.1088369	No
	19			0.1840472	**No**
	20			0.0765294	No

Health Risk Assessment
300 Airport Boulevard
Operational Cancer Risk - 12 hour exposure

Receptor Type	Receptor #	µg/m^3	70yr (µg/m^3)	Daily breathing rate (DBR) (L/kg bw-day)	Inhalation absorption factor	Exposure frequency (EF) (days/year)	Exposure Duration (ED) (years)	Conversion factor (1x10^{-6})	Averaging period (AT) (days)	Dose	Cancer Potency Value	Cancer Risk	Significant?
TOC Exhaust													
Daycare	1	1.22	1.10752	581	1	260	5	0.000001	25550	3.27E-05	1.18E-06	3.86E-05	No
Daycare	2	1.21	1.09845	581	1	260	5	0.000001	25550	3.25E-05	1.18E-06	3.83E-05	No
Daycare	3	1.19	1.08029	581	1	260	5	0.000001	25550	3.19E-05	1.18E-06	3.77E-05	No
Daycare	4	1.17	1.06213	581	1	260	5	0.000001	25550	3.14E-05	1.18E-06	3.71E-05	No
Daycare	5	1.14	1.03490	581	1	260	5	0.000001	25550	3.06E-05	1.18E-06	3.61E-05	No
Daycare	6	1.01	0.91689	581	1	260	5	0.000001	25550	2.71E-05	1.18E-06	3.20E-05	No
Daycare	7	1.08	0.98043	581	1	260	5	0.000001	25550	2.90E-05	1.18E-06	3.42E-05	No
Daycare	8	0.91	0.82610	581	1	260	5	0.000001	25550	2.44E-05	1.18E-06	2.88E-05	No
Daycare	9	0.89	0.80795	581	1	260	5	0.000001	25550	2.39E-05	1.18E-06	2.82E-05	No
Daycare	10	0.87	0.78979	581	1	260	5	0.000001	25550	2.33E-05	1.18E-06	2.76E-05	No
Daycare	11	0.86	0.78071	581	1	260	5	0.000001	25550	2.31E-05	1.18E-06	2.72E-05	No
Daycare	12	0.83	0.75348	581	1	260	5	0.000001	25550	2.23E-05	1.18E-06	2.63E-05	No
Daycare	13	0.71	0.64454	581	1	260	5	0.000001	25550	1.91E-05	1.18E-06	2.25E-05	No
Daycare	14	0.69	0.62639	581	1	260	5	0.000001	25550	1.85E-05	1.18E-06	2.19E-05	No
Daycare	15	0.68	0.61731	581	1	260	5	0.000001	25550	1.82E-05	1.18E-06	2.15E-05	No
Daycare	16	0.66	0.59915	581	1	260	5	0.000001	25550	1.77E-05	1.18E-06	2.09E-05	No
Daycare	17	0.64	0.58100	581	1	260	5	0.000001	25550	1.72E-05	1.18E-06	2.03E-05	No
TOC Evaporative Loss													
Daycare	1	1.37	1.52595	581	1	260	5	0.000001	25550	4.51E-05	1.07E-07	4.83E-06	No
Daycare	2	1.37	1.52595	581	1	260	5	0.000001	25550	4.51E-05	1.07E-07	4.83E-06	No
Daycare	3	1.36	1.51481	581	1	260	5	0.000001	25550	4.48E-05	1.07E-07	4.79E-06	No
Daycare	4	1.36	1.51481	581	1	260	5	0.000001	25550	4.48E-05	1.07E-07	4.79E-06	No
Daycare	5	1.34	1.49253	581	1	260	5	0.000001	25550	4.41E-05	1.07E-07	4.72E-06	No
Daycare	6	1.17	1.30318	581	1	260	5	0.000001	25550	3.85E-05	1.07E-07	4.12E-06	No
Daycare	7	1.26	1.40343	581	1	260	5	0.000001	25550	4.15E-05	1.07E-07	4.44E-06	No
Daycare	8	1.04	1.15838	581	1	260	5	0.000001	25550	3.42E-05	1.07E-07	3.66E-06	No
Daycare	9	1.04	1.15838	581	1	260	5	0.000001	25550	3.42E-05	1.07E-07	3.66E-06	No
Daycare	10	1.03	1.14724	581	1	260	5	0.000001	25550	3.39E-05	1.07E-07	3.63E-06	No
Daycare	11	1.02	1.13611	581	1	260	5	0.000001	25550	3.36E-05	1.07E-07	3.59E-06	No
Daycare	12	1	1.11383	581	1	260	5	0.000001	25550	3.29E-05	1.07E-07	3.52E-06	No
Daycare	13	0.83	0.92448	581	1	260	5	0.000001	25550	2.73E-05	1.07E-07	2.92E-06	No
Daycare	14	0.83	0.92448	581	1	260	5	0.000001	25550	2.73E-05	1.07E-07	2.92E-06	No
Daycare	15	0.82	0.91334	581	1	260	5	0.000001	25550	2.70E-05	1.07E-07	2.89E-06	No
Daycare	16	0.81	0.90220	581	1	260	5	0.000001	25550	2.67E-05	1.07E-07	2.85E-06	No
Daycare	17	0.8	0.89106	581	1	260	5	0.000001	25550	2.63E-05	1.07E-07	2.82E-06	No
DPM Unmitigated													
Daycare	1	0.1	0.09241	581	1	260	5	0.000001	25550	2.73E-06	1.1	3.0049	No
Daycare	2	0.1	0.09241	581	1	260	5	0.000001	25550	2.73E-06	1.1	3.0049	No
Daycare	3	0.1	0.09241	581	1	260	5	0.000001	25550	2.73E-06	1.1	3.0049	No
Daycare	4	0.1	0.09241	581	1	260	5	0.000001	25550	2.73E-06	1.1	3.0049	No
Daycare	5	0.1	0.09241	581	1	260	5	0.000001	25550	2.73E-06	1.1	3.0049	No
Daycare	6	0.09	0.08317	581	1	260	5	0.000001	25550	2.46E-06	1.1	2.7044	No
Daycare	7	0.09	0.08317	581	1	260	5	0.000001	25550	2.46E-06	1.1	2.7044	No
Daycare	8	0.08	0.07393	581	1	260	5	0.000001	25550	2.19E-06	1.1	2.4039	No
Daycare	9	0.08	0.07393	581	1	260	5	0.000001	25550	2.19E-06	1.1	2.4039	No
Daycare	10	0.07	0.06469	581	1	260	5	0.000001	25550	1.91E-06	1.1	2.1034	No
Daycare	11	0.07	0.06469	581	1	260	5	0.000001	25550	1.91E-06	1.1	2.1034	No
Daycare	12	0.07	0.06469	581	1	260	5	0.000001	25550	1.91E-06	1.1	2.1034	No
Daycare	13	0.06	0.05545	581	1	260	5	0.000001	25550	1.64E-06	1.1	1.8030	No
Daycare	14	0.06	0.05545	581	1	260	5	0.000001	25550	1.64E-06	1.1	1.8030	No
Daycare	15	0.06	0.05545	581	1	260	5	0.000001	25550	1.64E-06	1.1	1.8030	No
Daycare	16	0.06	0.05545	581	1	260	5	0.000001	25550	1.64E-06	1.1	1.8030	No
Daycare	17	0.06	0.05545	581	1	260	5	0.000001	25550	1.64E-06	1.1	1.8030	No

Appendix C

ISTSC3 Output

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**
****************************************
**
** ISCST3 Input Produced by:
** AERMOD View Ver. 7.1.0
** Lakes Environmental Software Inc.
** Date: 10/10/2011
** File: C:\AERMOD\Airport\Airport.INP
**
****************************************
**
**
****************************************
** ISCST3 Control Pathway
****************************************
**
**
CO STARTING
   TITLEONE C:\AERMOD\Airport\Airport.isc
   TITLETWO HRA - Cancer Risk Only
   MODELOPT DFAULT CONC  URBAN
   AVERTIME ANNUAL
   POLLUTID PM_2.5
   TERRHGTS ELEV
   RUNORNOT RUN
   ERRORFIL Airport.err
CO FINISHED
**
****************************************
** ISCST3 Source Pathway
****************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
   LOCATION PAREA1       AREAPOLY   558544.109  4160407.761        3.050
** Source Parameters **
   SRCPARAM PAREA1             1.0     3.048         9
   AREAVERT PAREA1       558544.109 4160407.761 558546.268 4160450.928
   AREAVERT PAREA1       558618.572 4160447.690 558579.722 4160558.845
   AREAVERT PAREA1       558554.901 4160605.250 558536.555 4160630.071
   AREAVERT PAREA1       558485.834 4160633.308 558444.825 4160634.387
   AREAVERT PAREA1       558448.063 4160406.682
   SRCGROUP ALL
SO FINISHED
**
****************************************
** ISCST3 Receptor Pathway
****************************************
**
**
RE STARTING
   GRIDCART UCART1 STA
                    XYINC 558358.27 21 22.58 4160190.41 21 30.33
                    ELEV    1     0.00     0.00     3.05     3.05     3.05     3.05
                    ELEV    1     3.05     3.05     3.05     3.05     3.05     3.05
                    ELEV    1     3.05     3.05     3.05     3.05     3.05     3.05
                    ELEV    1     3.05     3.05     3.05
                    ELEV    2     0.00     0.00     0.00     2.74     2.74     2.74
                    ELEV    2     2.44     2.44     2.44     2.44     2.74     2.74
                    ELEV    2     2.74     2.74     2.74     2.74     2.74     2.74
                    ELEV    2     2.74     2.44     2.13
                    ELEV    3     0.00     0.00     0.00     2.44     3.05     3.05
                    ELEV    3     3.05     3.05     3.05     3.05     3.05     2.74
                    ELEV    3     2.74     2.74     1.52     1.52     1.52     1.52
                    ELEV    3     1.52     0.00     0.00
                    ELEV    4     0.00     0.00     0.00     0.00     3.05     3.05
                    ELEV    4     3.05     3.05     3.05     3.05     3.05     2.74
                    ELEV    4     2.74     2.74     2.74     1.52     1.52     1.52
                    ELEV    4     1.52     0.00     0.00
                    ELEV    5     3.66     3.66     3.66     0.00     3.05     3.05
                    ELEV    5     3.05     3.05     3.05     3.05     3.05     2.74
                    ELEV    5     2.74     2.74     2.74     2.74     1.52     1.52
                    ELEV    5     1.52     0.00     0.00
                    ELEV    6     3.66     3.66     3.66     0.00     3.05     3.05
                    ELEV    6     3.05     3.05     3.05     3.05     3.05     2.74
                    ELEV    6     2.74     2.74     2.74     2.74     2.74     2.74
                    ELEV    6     1.52     0.00     0.00
                    ELEV    7     3.66     3.66     3.66     0.00     3.05     3.05
                    ELEV    7     3.05     3.05     3.05     3.05     3.05     2.74
                    ELEV    7     2.74     2.74     2.74     2.74     2.74     2.74
                    ELEV    7     2.74     0.00     0.00
                    ELEV    8     3.66     3.66     3.66     0.00     3.66     3.66
                    ELEV    8     3.66     3.05     3.05     3.05     3.05     2.74
                    ELEV    8     2.74     2.74     2.74     2.74     2.74     2.74
                    ELEV    8     2.74     0.00     0.00
                    ELEV    9     3.66     3.66     3.66     0.00     3.66     3.66
                    ELEV    9     3.66     3.66     3.05     3.05     3.05     2.74
                    ELEV    9     2.74     2.74     2.74     2.74     2.74     2.74
                    ELEV    9     2.74     0.00     0.00
                    ELEV   10     3.66     3.66     3.66     0.00     3.66     3.66
                    ELEV   10     3.66     3.66     3.66     3.66     2.74     2.74
                    ELEV   10     2.74     2.74     2.74     2.74     2.74     2.74
                    ELEV   10     2.74     0.00     0.00
                    ELEV   11     3.66     3.66     3.66     0.00     3.66     3.66
                    ELEV   11     3.66     3.66     3.66     3.66     3.66     2.74
                    ELEV   11     2.74     2.74     2.74     2.74     2.74     2.74
                    ELEV   11     2.74     0.00     0.00
                    ELEV   12     3.66     3.66     3.66     0.00     3.66     3.66
                    ELEV   12     3.66     3.66     3.66     3.66     3.96     3.96
                    ELEV   12     2.74     2.74     2.74     2.74     2.74     2.74
                    ELEV   12     2.74     0.00     0.00
                    ELEV   13     3.66     3.66     3.66     0.00     3.66     3.66
                    ELEV   13     3.66     3.66     3.66     3.66     3.96     3.96
                    ELEV   13     3.96     3.96     2.74     2.74     2.74     2.74
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                    ELEV   13     2.74     0.00     0.00
                    ELEV   14     3.66     3.66     3.66     0.00     3.66     3.66
                    ELEV   14     3.66     3.66     3.66     3.66     3.96     3.96
                    ELEV   14     3.96     3.96     3.66     2.74     2.74     2.74
                    ELEV   14     2.74     0.00     0.00
                    ELEV   15     4.57     4.57     4.57     0.00     4.57     4.57
                    ELEV   15     4.57     4.57     4.57     4.57     4.88     4.88
                    ELEV   15     4.88     4.88     4.88     4.88     4.88     4.88
                    ELEV   15     4.88     0.00     0.00
                    ELEV   16     4.57     4.57     4.57     0.00     4.57     4.57
                    ELEV   16     4.57     4.57     4.57     4.57     4.88     4.88
                    ELEV   16     4.88     4.88     4.88     4.88     4.88     4.88
                    ELEV   16     4.88     0.00     0.00
                    ELEV   17     4.27     4.27     4.27     0.00     4.27     4.57
                    ELEV   17     4.57     4.57     4.57     4.57     4.88     4.88
                    ELEV   17     4.88     4.88     4.88     4.88     4.88     4.88
                    ELEV   17     4.88     0.00     0.00
                    ELEV   18     4.27     4.27     4.27     0.00     3.35     4.27
                    ELEV   18     4.27     4.57     4.57     4.57     4.57     4.57
                    ELEV   18     4.57     4.88     4.88     4.88     4.88     4.88
                    ELEV   18     4.88     0.00     0.00
                    ELEV   19     3.35     3.35     3.35     0.00     0.00     3.35
                    ELEV   19     3.35     3.35     3.35     3.35     3.35     3.35
                    ELEV   19     3.35     3.35     3.35     3.35     3.35     3.35
                    ELEV   19     3.35     0.00     0.00
                    ELEV   20     0.00     0.00     0.00     0.00     0.00     0.00
                    ELEV   20     0.00     0.00     0.00     0.00     0.00     0.00
                    ELEV   20     0.00     0.00     0.00     0.00     0.00     0.00
                    ELEV   20     0.00     0.00     0.00
                    ELEV   21     0.00     0.00     0.00     0.00     0.00     0.00
                    ELEV   21     0.00     0.00     0.00     0.00     0.00     0.00
                    ELEV   21     0.00     0.00     0.00     0.00     0.00     0.00
                    ELEV   21     0.00     0.00     0.00
   GRIDCART UCART1 END
** DESCRREC "DC-i" "Inside daycare center"
   DISCCART    558551.77   4160413.35    3.05
   DISCCART    558585.78   4160410.74    3.05
   DISCCART    558613.69   4160422.07    2.74
   DISCCART    558584.91   4160443.87    2.74
   DISCCART    558551.77   4160443.00    3.05
** DESCRREC "DC-o" "Outside daycare center"
   DISCCART    558632.00   4160411.61    2.74
   DISCCART    558632.00   4160425.56    2.74
RE FINISHED
**
****************************************
** ISCST3 Meteorology Pathway
****************************************
**
**
ME STARTING
   INPUTFIL MnM\mst05300.asc
   ANEMHGHT 3 METERS
   SURFDATA 6801 2005 San_Mateo_STP
   UAIRDATA 6801 2005
ME FINISHED
**
****************************************
** ISCST3 Output Pathway
****************************************
**
**
OU STARTING
** Auto-Generated Plotfiles
   PLOTFILE ANNUAL ALL Airport.IS\AN00GALL.PLT
OU FINISHED

***********************************
*** SETUP Finishes Successfully ***
***********************************

 *** ISCST3 - VERSION 02035 ***    *** C:\AERMOD\Airport\Airport.isc                                        ***        10/10/11
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**MODELOPTs:                                                                                                      PAGE   1
CONC                    URBAN ELEV         DFAULT

                                           ***     MODEL SETUP OPTIONS SUMMARY       ***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

**Intermediate Terrain Processing is Selected

**Model Is Setup For Calculation of Average CONCentration Values.

  --  SCAVENGING/DEPOSITION LOGIC --
**Model Uses NO DRY DEPLETION.  DDPLETE =  F
**Model Uses NO WET DEPLETION.  WDPLETE =  F
**NO WET SCAVENGING Data Provided.
**NO GAS DRY DEPOSITION Data Provided.
**Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations

**Model Uses URBAN Dispersion.

**Model Uses Regulatory DEFAULT Options:
          1. Final Plume Rise.
          2. Stack-tip Downwash.
          3. Buoyancy-induced Dispersion.
          4. Use Calms Processing Routine.
          5. Not Use Missing Data Processing Routine.
          6. Default Wind Profile Exponents.
          7. Default Vertical Potential Temperature Gradients.
          8. "Upper Bound" Values for Supersquat Buildings.
          9. No Exponential Decay for URBAN/Non-SO2

**Model Accepts Receptors on ELEV Terrain.

**Model Assumes No FLAGPOLE Receptor Heights.
```

**Model Calculates ANNUAL Averages Only

**This Run Includes: 1 Source(s); 1 Source Group(s); and 448 Receptor(s)

**The Model Assumes A Pollutant Type of: PM_2.5

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
  Model Outputs Tables of ANNUAL Averages by Receptor
  Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)

**NOTE: The Following Flags May Appear Following CONC Values: c for Calm Hours
                                                                m for Missing Hours
                                                                b for Both Calm and Missing Hours

**Misc. Inputs: Anem. Hgt. (m) = 3.00 ; Decay Coef. = 0.000 ; Rot. Angle = 0.0
                 Emission Units = GRAMS/SEC   ; Emission Rate Unit Factor = 0.10000E+07
                 Output Units   = MICROGRAMS/M**3

**Approximate Storage Requirements of Model = 1.2 MB of RAM.

**Input Runstream File: Airport.INP
**Output Print File: Airport.OUT
**Detailed Error/Message File: Airport.err
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**MODELOPTs: PAGE 2
CONC URBAN ELEV DFAULT

*** AREAPOLY SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC /METER**2)	LOCATION OF AREA X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	NUMBER OF VERTS.	INIT. SZ (METERS)	EMISSION RATE SCALAR VARY BY
PAREA1	0	0.10000E+01	558544.1	4160407.8	3.0	3.05	9	0.00	

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**MODELOPTs: PAGE 3
CONC URBAN ELEV DFAULT

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	PAREA1 ,

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**MODELOPTs: PAGE 4
CONC URBAN ELEV DFAULT

*** GRIDDED RECEPTOR NETWORK SUMMARY ***

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

*** X-COORDINATES OF GRID ***
(METERS)

558358.2, 558380.8, 558403.4, 558426.0, 558448.6, 558471.1, 558493.8, 558516.3, 558538.9, 558561.5,
558584.1, 558606.6, 558629.2, 558651.8, 558674.4, 558696.9, 558719.5, 558742.1, 558764.7, 558787.2,
558809.9,

*** Y-COORDINATES OF GRID ***
(METERS)

4160190.5, 4160220.8, 4160251.2, 4160281.5, 4160311.8, 4160342.2, 4160372.5, 4160402.8, 4160433.2, 4160463.5,
4160493.8, 4160524.2, 4160554.5, 4160584.8, 4160615.0, 4160645.5, 4160675.8, 4160706.0, 4160736.5, 4160766.8,
4160797.0,

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**MODELOPTs: PAGE 5
CONC URBAN ELEV DFAULT

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

* ELEVATION HEIGHTS IN METERS *

Y-COORD (METERS)	X-COORD (METERS) 558358.25	558380.81	558403.44	558426.00	558448.56	558471.12	558493.75	558516.31	558538.88
4160797.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4160766.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4160736.50	3.35	3.35	3.35	0.00	0.00	3.35	3.35	3.35	3.35
4160706.00	4.27	4.27	4.27	0.00	3.35	4.27	4.27	4.57	4.57
4160675.75	4.27	4.27	4.27	0.00	4.27	4.57	4.57	4.57	4.57
4160645.50	4.57	4.57	4.57	0.00	4.57	4.57	4.57	4.57	4.57
4160615.00	4.57	4.57	4.57	0.00	4.57	4.57	4.57	4.57	4.57
4160584.75	3.66	3.66	3.66	0.00	3.66	3.66	3.66	3.66	3.66
4160554.50	3.66	3.66	3.66	0.00	3.66	3.66	3.66	3.66	3.66
4160524.25	3.66	3.66	3.66	0.00	3.66	3.66	3.66	3.66	3.66
4160493.75	3.66	3.66	3.66	0.00	3.66	3.66	3.66	3.66	3.66
4160463.50	3.66	3.66	3.66	0.00	3.66	3.66	3.66	3.66	3.66
4160433.25	3.66	3.66	3.66	0.00	3.66	3.66	3.66	3.66	3.05
4160402.75	3.66	3.66	3.66	0.00	3.66	3.66	3.66	3.05	3.05

4160372.50 |	3.66	3.66	3.66	0.00	3.05	3.05	3.05	3.05	3.05
4160342.25 |	3.66	3.66	3.66	0.00	3.05	3.05	3.05	3.05	3.05
4160311.75 |	3.66	3.66	3.66	0.00	3.05	3.05	3.05	3.05	3.05
4160281.50 |	0.00	0.00	0.00	0.00	3.05	3.05	3.05	3.05	3.05
4160251.25 |	0.00	0.00	0.00	2.44	3.05	3.05	3.05	3.05	3.05
4160220.75 |	0.00	0.00	0.00	2.74	2.74	2.74	2.44	2.44	2.44
4160190.50 |	0.00	0.00	3.05	3.05	3.05	3.05	3.05	3.05	3.05

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**MODELOPTS: PAGE 6
CONC URBAN ELEV DFAULT

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

* ELEVATION HEIGHTS IN METERS *

Y-COORD (METERS)	X-COORD (METERS) 558561.50	558584.06	558606.63	558629.19	558651.81	558674.38	558696.94	558719.50	558742.13
4160797.00 |	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4160766.75 |	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4160736.50 |	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35
4160706.00 |	4.57	4.57	4.57	4.57	4.88	4.88	4.88	4.88	4.88
4160675.75 |	4.57	4.88	4.88	4.88	4.88	4.88	4.88	4.88	4.88
4160645.50 |	4.57	4.88	4.88	4.88	4.88	4.88	4.88	4.88	4.88
4160615.00 |	4.57	4.88	4.88	4.88	4.88	4.88	4.88	4.88	4.88
4160584.75 |	3.66	3.96	3.96	3.96	3.96	3.66	2.74	2.74	2.74
4160554.50 |	3.66	3.96	3.96	3.96	3.96	2.74	2.74	2.74	2.74
4160524.25 |	3.66	3.96	3.96	2.74	2.74	2.74	2.74	2.74	2.74
4160493.75 |	3.66	3.66	2.74	2.74	2.74	2.74	2.74	2.74	2.74
4160463.50 |	3.66	2.74	2.74	2.74	2.74	2.74	2.74	2.74	2.74
4160433.25 |	3.05	3.05	2.74	2.74	2.74	2.74	2.74	2.74	2.74
4160402.75 |	3.05	3.05	2.74	2.74	2.74	2.74	2.74	2.74	2.74
4160372.50 |	3.05	3.05	2.74	2.74	2.74	2.74	2.74	2.74	2.74
4160342.25 |	3.05	3.05	2.74	2.74	2.74	2.74	2.74	2.74	2.74
4160311.75 |	3.05	3.05	2.74	2.74	2.74	2.74	2.74	1.52	1.52
4160281.50 |	3.05	3.05	2.74	2.74	2.74	2.74	1.52	1.52	1.52
4160251.25 |	3.05	3.05	2.74	2.74	2.74	1.52	1.52	1.52	1.52
4160220.75 |	2.44	2.74	2.74	2.74	2.74	2.74	2.74	2.74	2.74
4160190.50 |	3.05	3.05	3.05	3.05	3.05	3.05	3.05	3.05	3.05

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**MODELOPTS: PAGE 7
CONC URBAN ELEV DFAULT

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

* ELEVATION HEIGHTS IN METERS *

Y-COORD (METERS)	X-COORD (METERS) 558764.69	558787.25	558809.88
4160797.00 |	0.00	0.00	0.00
4160766.75 |	0.00	0.00	0.00
4160736.50 |	3.35	0.00	0.00
4160706.00 |	4.88	0.00	0.00
4160675.75 |	4.88	0.00	0.00
4160645.50 |	4.88	0.00	0.00
4160615.00 |	4.88	0.00	0.00
4160584.75 |	2.74	0.00	0.00
4160554.50 |	2.74	0.00	0.00
4160524.25 |	2.74	0.00	0.00
4160493.75 |	2.74	0.00	0.00
4160463.50 |	2.74	0.00	0.00
4160433.25 |	2.74	0.00	0.00
4160402.75 |	2.74	0.00	0.00
4160372.50 |	2.74	0.00	0.00
4160342.25 |	1.52	0.00	0.00
4160311.75 |	1.52	0.00	0.00
4160281.50 |	1.52	0.00	0.00
4160251.25 |	1.52	0.00	0.00
4160220.75 |	2.74	2.44	2.13
4160190.50 |	3.05	3.05	3.05

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CONC URBAN ELEV DFAULT

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZFLAG)
(METERS)

(558551.8, 4160413.3, 3.0, 0.0); (558585.8, 4160410.8, 3.0, 0.0);
(558613.7, 4160422.0, 2.7, 0.0); (558584.9, 4160443.8, 2.7, 0.0);
(558551.8, 4160443.0, 3.0, 0.0); (558632.0, 4160411.5, 2.7, 0.0);
(558632.0, 4160425.5, 2.7, 0.0);

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CONC URBAN ELEV DFAULT

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
(1=YES; 0=NO)

1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** WIND PROFILE EXPONENTS ***

STABILITY CATEGORY	WIND SPEED CATEGORY 1	2	3	4	5	6
A	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
B	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
C	.20000E+00	.20000E+00	.20000E+00	.20000E+00	.20000E+00	.20000E+00
D	.25000E+00	.25000E+00	.25000E+00	.25000E+00	.25000E+00	.25000E+00
E	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00
F	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00

*** VERTICAL POTENTIAL TEMPERATURE GRADIENTS ***
(DEGREES KELVIN PER METER)

STABILITY CATEGORY	WIND SPEED CATEGORY 1	2	3	4	5	6
A	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
B	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
C	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
D	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
E	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01
F	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01

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CONC URBAN ELEV DFAULT

*** THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

FILE: MnM\mst05300.asc
FORMAT: (4I2,2F9.4,F6.1,I2,2F7.1,f9.4,f10.1,f8.4,i4,f7.2)
SURFACE STATION NO.: 6801 UPPER AIR STATION NO.: 6801
NAME: SAN_MATEO_STP NAME: UNKNOWN
YEAR: 2005 YEAR: 2005

YR MN DY HR	FLOW VECTOR	SPEED (M/S)	TEMP (K)	STAB CLASS	MIXING HEIGHT (M) RURAL	URBAN	USTAR (M/S)	M-O LENGTH (M)	Z-0 (M)	IPCODE	PRATE (mm/HR)
05 01 01 01	61.0	2.10	282.0	4	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 02	39.9	2.68	282.0	4	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 03	41.5	1.12	281.7	5	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 04	305.2	1.00	281.7	6	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 05	17.1	1.00	281.0	6	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 06	305.4	1.00	280.5	6	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 07	340.8	1.52	280.0	6	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 08	328.1	1.48	280.2	6	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 09	330.3	1.03	281.7	5	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 10	332.2	1.83	283.2	4	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 11	330.8	1.88	284.4	3	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 12	8.7	3.98	285.2	3	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 13	20.8	3.98	285.1	2	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 14	29.9	4.96	285.6	3	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 15	26.0	4.11	285.0	3	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 16	46.0	2.64	284.5	3	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 17	19.8	1.88	283.7	4	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 18	18.9	2.50	282.7	4	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 19	15.4	1.56	282.4	5	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 20	22.4	1.00	282.2	6	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 21	27.4	1.52	282.0	5	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 22	334.9	1.43	281.9	5	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 23	325.9	1.97	282.0	5	300.0	300.0	0.0000	0.0	0.0000	0	0.00
05 01 01 24	346.8	2.86	282.2	4	300.0	300.0	0.0000	0.0	0.0000	0	0.00

*** NOTES: STABILITY CLASS 1=A, 2=B, 3=C, 4=D, 5=E AND 6=F.
FLOW VECTOR IS DIRECTION TOWARD WHICH WIND IS BLOWING.

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**MODELOPTS: PAGE 11
CONC URBAN ELEV DFAULT

*** THE ANNUAL (1 YRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PAREA1 ,

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF PM_2.5 IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 558358.25	558380.81	558403.44	558426.00	558448.56	558471.12	558493.75	558516.31	558538.88
4160797.00	199616.85900	215778.21900	230951.18800	245926.15600	262612.84400	285766.90600	317065.21900	352398.09400	388895.09400
4160766.75	231145.53100	256921.79700	281283.53100	306019.09400	332688.68800	366160.00000	409931.56200	460683.93800	514413.28100
4160736.50	265450.81200	306654.15600	347641.31200	388945.71900	435611.53100	492704.78100	559582.87500	638416.43800	720503.18800
4160706.00	298217.87500	361570.40600	434440.59400	509767.50000	596500.56200	709701.81200	836556.93800	969819.18800	1087974.38000
4160675.75	318570.37500	408649.12500	529759.68800	682768.68800	866136.87500	1130175.25000	1432311.25000	1654005.13000	1781146.25000

4160645.50	321233.87500	428797.78100	594227.68800	867663.312001268261.000002044684.130002721600.250003073723.500003125918.00000						
4160615.00	313253.15600	429665.40600	615545.75000	942499.875001515080.620002711457.250003747990.250004331084.500004509138.00000						
4160584.75	293218.56200	411114.28100	606953.37500	965876.688001658884.380003004147.000004238025.000004973372.500005308112.50000						
4160554.50	265375.84400	380965.25000	578416.18800	950452.438001672757.380003054429.000004335969.500005137242.500005561144.00000						
4160524.25	232833.28100	339326.46900	529892.56200	898174.125001621024.120002981305.500004265400.500005061844.500005510223.00000						
4160493.75	196458.31200	287859.56200	458891.56200	807130.063001500090.380002814802.500004055299.500004778750.500005158325.50000						
4160463.50	162464.37500	232992.34400	369721.46900	668939.625001297910.250002515513.250003645506.750004233721.500004432777.00000						
4160433.25	137451.56200	188385.85900	280852.34400	483293.53100	965907.43800	1900015.630002736118.750003172550.750003297277.00000				
4160402.75	118737.51600	158339.98400	224257.56200	348375.68800	669839.188001119209.500001529686.880001787332.630001864926.25000					
4160372.50	104182.32000	136766.09400	188089.37500	274065.21900	421027.00000	568971.37500	705790.62500	825703.43800	874733.43800	
4160342.25	95250.19530	121575.65600	159786.01600	216380.00000	288906.40600	355994.78100	410521.12500	452471.65600	478880.09400	
4160311.75	85695.96880	106403.61700	135068.67200	172520.29700	214516.78100	251935.18800	279499.71900	297116.71900	306455.71900	
4160281.50	76526.87500	93320.28910	115074.14100	141172.42200	167938.90600	190565.65600	206442.06200	215147.67200	218859.12500	
4160251.25	68677.48440	82435.46090	99227.75000	117833.52300	135583.14100	150034.32800	159866.84400	164669.70300	166083.73400	
4160220.75	62064.28910	73325.74220	86236.62500	99596.53120	111733.04700	121336.55500	127702.34400	130596.63300	130988.64100	
4160190.50	56456.38670	65584.13280	75495.00000	85261.46090	93841.66410	100464.67200	104755.26600	106616.60900	106601.25800	

CONC URBAN ELEV DFAULT

*** THE ANNUAL (1 YRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PAREA1 ,

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF PM_2.5 IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 558561.50	558584.06	558606.63	558629.19	558651.81	558674.38	558696.94	558719.50	558742.13
4160797.00	425204.25000	457969.96900	484086.18800	501321.56300	508418.15600	505581.37500	494244.46900	476167.68800	453005.71900
4160766.75	565403.43800	605986.18800	631923.87500	641333.31200	634940.06300	615940.56200	587907.68800	553793.62500	515860.15600
4160736.50	788045.87500	829519.31200	842337.12500	828174.50000	793927.87500	747469.81300	694177.93800	637682.12500	580546.31200
4160706.00	1160401.880001176675.000001141959.500001073593.25000	989107.50000	899511.12500	810133.00000	724213.75000	643745.62500			
4160675.75	1800610.120001704046.750001546726.380001376729.630001213428.250001063603.75000	928284.12500	807757.50000	701799.50000					
4160645.50	2892874.750002465826.500002069417.750001739553.880001465654.380001237572.120001046338.56000	886298.18800	753239.93800						
4160615.00	4268705.000003470820.000002717349.750002156736.750001733445.500001407476.000001151540.00000	949775.62500	790900.75000						
4160584.75	5133667.000004512934.000003417345.250002570465.000001972372.000001540945.130001221936.12000	984571.81300	806594.43800						
4160554.50	5584512.500005137307.000004109701.000002953647.500002155832.250001616539.000001244239.25000	983799.50000	796795.56300						
4160524.25	5622826.500005298147.000004544450.000003229501.500002243831.500001614283.380001212741.00000	947443.06200	763385.18800						
4160493.75	5242658.000004983345.000004336003.500003213902.750002142545.250001510229.620001130523.13000	884858.50000	715507.12500						
4160463.50	4251672.500003744916.750003214705.750002584908.500001794766.630001310931.380001007779.88000	802326.31300	655438.56200						
4160433.25	2978418.500002388424.500002014150.120001658640.880001325210.500001047621.12000	846188.43800	696342.93800	581605.93800					
4160402.75	1646300.880001380508.130001167807.750001016493.13000	905969.62500	798379.25000	688067.18800	589920.31300	507180.68800			
4160372.50	865003.18800	828415.87500	754782.50000	681365.50000	626448.75000	580858.43800	536145.25000	487010.15600	436051.59400
4160342.25	494481.12500	501918.53100	495647.43700	477533.68800	454306.25000	431529.71900	409611.28100	387693.43800	362979.12500
4160311.75	313714.31200	321545.81200	327532.28100	330433.09400	329580.65600	324470.03100	315798.15600	305490.50000	294236.62500
4160281.50	220726.79700	223320.70300	227662.81200	232854.96900	238171.81200	242220.46900	243261.06200	241095.15600	236954.84400
4160251.25	166152.37500	166282.59400	167804.68800	170991.09400	175524.06200	180916.01600	185829.40600	188803.90600	189585.01600
4160220.75	130346.75800	129693.98400	129845.28100	131236.42200	133886.03100	137775.65600	142497.40600	147002.62500	150378.15600
4160190.50	105691.14100	104762.86700	104398.63300	104879.99200	106253.60200	108584.07800	111894.84400	115797.79700	119611.09400

CONC URBAN ELEV DFAULT

*** THE ANNUAL (1 YRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PAREA1 ,

*** NETWORK ID: UCART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF PM_2.5 IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 558764.69	558787.25	558809.88
4160797.00	426506.06200	398126.34400	369150.31200
4160766.75	476365.65600	436980.56200	399004.15600
4160736.50	525283.06300	473410.21900	425862.53100
4160706.00	570751.31200	505826.00000	448907.96900
4160675.75	610729.50000	533337.31200	467912.68800
4160645.50	644325.37500	555330.31300	482316.65600
4160615.00	666497.06200	568143.31200	489335.43800
4160584.75	672128.31200	568412.62500	486826.53100
4160554.50	659416.56300	555528.56200	474988.71900
4160524.25	631076.62500	532286.56200	456147.25000
4160493.75	593715.62500	502471.78100	431851.06200
4160463.50	547271.06200	465108.12500	401020.21900
4160433.25	492709.93800	422739.50000	366869.50000
4160402.75	438608.43800	381779.03100	334603.40600
4160372.50	387854.46900	344357.28100	306022.09400
4160342.25	335307.12500	306431.71900	278146.90600
4160311.75	281072.40600	265394.90600	247734.03100
4160281.50	231517.82800	224437.90600	215323.87500
4160251.25	188750.46900	186641.43800	183105.65600
4160220.75	152392.50000	153257.67200	153068.12500
4160190.50	122791.46100	125192.79700	126837.04700

CONC URBAN ELEV DFAULT

*** THE ANNUAL (1 YRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PAREA1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF PM_2.5 IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
558551.75	4160413.25	2189437.50000	558585.75	4160410.75	1567352.75000
558613.69	4160422.00	1539517.25000	558584.94	4160443.75	2853801.25000

558551.75 4160443.00 3702417.25000 558632.00 4160411.50 1142251.88000
558632.00 4160425.50 1427783.88000

CONC URBAN ELEV DFAULT

*** THE SUMMARY OF MAXIMUM ANNUAL (1 YRS) RESULTS ***

** CONC OF PM_2.5 IN MICROGRAMS/M**3 **

GROUP ID	AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS 5622826.50000 AT	(558561.50, 4160524.25, 3.66, 0.00)	GC	UCART1
	2ND HIGHEST VALUE IS 5584512.50000 AT	(558561.50, 4160554.50, 3.66, 0.00)	GC	UCART1
	3RD HIGHEST VALUE IS 5561144.00000 AT	(558538.88, 4160554.50, 3.66, 0.00)	GC	UCART1
	4TH HIGHEST VALUE IS 5510223.00000 AT	(558538.88, 4160524.25, 3.66, 0.00)	GC	UCART1
	5TH HIGHEST VALUE IS 5308112.50000 AT	(558538.88, 4160584.75, 3.66, 0.00)	GC	UCART1
	6TH HIGHEST VALUE IS 5298147.00000 AT	(558584.06, 4160524.25, 3.96, 0.00)	GC	UCART1
	7TH HIGHEST VALUE IS 5242658.00000 AT	(558561.50, 4160493.75, 3.66, 0.00)	GC	UCART1
	8TH HIGHEST VALUE IS 5158325.50000 AT	(558538.88, 4160493.75, 3.66, 0.00)	GC	UCART1
	9TH HIGHEST VALUE IS 5137307.00000 AT	(558584.06, 4160554.50, 3.96, 0.00)	GC	UCART1
	10TH HIGHEST VALUE IS 5137242.50000 AT	(558516.31, 4160554.50, 3.66, 0.00)	GC	UCART1

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

CONC URBAN ELEV DFAULT

*** Message Summary : ISCST3 Model Execution ***

--------- Summary of Total Messages --------

A Total of 0 Fatal Error Message(s)
A Total of 0 Warning Message(s)
A Total of 18 Informational Message(s)

A Total of 18 Calm Hours Identified

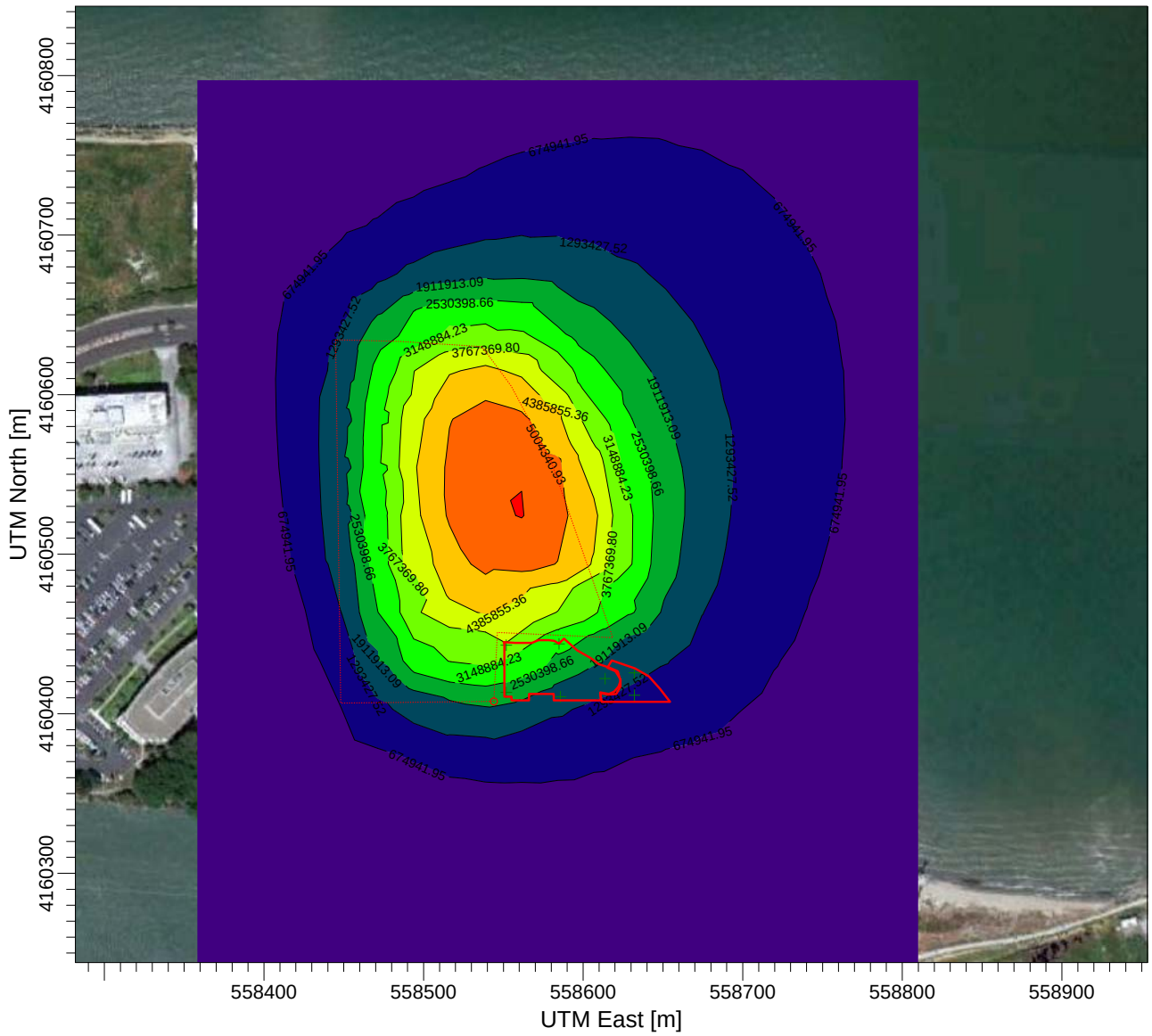
******** FATAL ERROR MESSAGES ********
*** NONE ***

******** WARNING MESSAGES ********
*** NONE ***

****
*** ISCST3 Finishes Successfully ***
****

PROJECT TITLE:

300 Airport Boulevard
PM2.5 Concentrations



PLOT FILE OF ANNUAL VALUES FOR SOURCE GROUP: ALL ug/m^3

56456.387 674941.955 1293427.523 1911913.091 2530398.659 3148884.227 3767369.796 4385855.364 5004340.932 5622826.500

COMMENTS:	SOURCES: **1**	COMPANY NAME:	
	RECEPTORS: **448**	MODELER:	
	OUTPUT TYPE: **Concentration**	SCALE: 1:4,222 (0 — 0.1 km)	
	MAX: **5622826.5 ug/m^3**	DATE: **10/11/2011**	PROJECT NO.:

Appendix D

CAL3QHCR Output

DATE : 10/ 3/11 PAGE: 1
TIME : 6: 7:51

JOB: 300 Airport PM - 12 hour RUN: 101 Broadway Ahead and 101 Penissula Bac

General Information

Run start date: 1/ 1/15 Julian: 1
end date: 12/31/15 Julian: 365

A Tier 2 approach was used for input data preparation.

The MODE flag has been set to P for calculating PM averages.

Ambient background concentrations are included in the averages below.

Site & Meteorological Constants

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 170. CM ATIM = 60.

Met. Sfc. Sta. Id & Yr = 6801 8
Upper Air Sta. Id & Yr = 6801 8

CAUTION: The input years for the Run and Meteorological data
differ. The respective values are: 15 and 8.

Urban mixing heights were processed.

In 2015, Julian day 1 is a Thursday.

The patterns from the input file
have been assigned as follows:

Pattern # 1 is assigned to Monday.
Pattern # 1 is assigned to Tuesday.
Pattern # 1 is assigned to Wednesday.
Pattern # 1 is assigned to Thursday.
Pattern # 1 is assigned to Friday.
Pattern # 1 is assigned to Saturday.
Pattern # 1 is assigned to Sunday.

Link Data Constants - (Variable data in *.LNK file)

LINK DESCRIPTION	LINK COORDINATES (FT) X1	Y1	X2	Y2	LENGTH (FT)	BRG (DEG)	TYPE	H (FT)	W (FT)	NLANES
2. 101 Broadway Ahead	-5000.0	0.0	1000.0	0.0	6000.	90.	AG	0.0	160.0	
24. 101 Penissula Back	1000.0	0.0	5000.0	-4100.0	5728.	136.	AG	0.0	160.0	

DATE : 10/ 3/11 PAGE: 2
TIME : 6: 7:51

JOB: 300 Airport PM - 12 hour RUN: 101 Broadway Ahead and 101 Penissula Bac

Receptor Data

RECEPTOR	COORDINATES (FT) X	Y	Z
1. REC 01	-500.0	750.0	6.0
2. REC 02	-250.0	750.0	6.0
3. REC 03	-50.0	750.0	6.0
4. REC 04	100.0	750.0	6.0
5. REC 05	300.0	750.0	6.0
6. REC 06	-50.0	875.0	6.0
7. REC 07	100.0	810.0	6.0
8. REC 08	-500.0	993.0	6.0
9. REC 09	-250.0	993.0	6.0
10. REC 10	-50.0	993.0	6.0
11. REC 11	100.0	993.0	6.0
12. REC 12	300.0	993.0	6.0
13. REC 13	-500.0	1236.0	6.0
14. REC 14	-250.0	1236.0	6.0
15. REC 15	-50.0	1236.0	6.0
16. REC 16	100.0	1236.0	6.0
17. REC 17	300.0	1236.0	6.0

Model Results

Remarks : In search of the wind direction corresponding
to the maximum concentration, only the first
direction, of the directions with the same maximum
concentrations, is indicated as the maximum.

* MAXIMUM HOURLY CONCENTRATIONS WITH ANY AMBIENT BACKGROUND CONCENTRATIONS (BKG) ADDED
* (MICROGRAMS/M**3)

	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10
MAX+BKG	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.6	0.6	0.6
- BKG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.6	0.6	0.6
WIND DIR	249	249	252	252	252	236	228	228	228	228
JULIAN	63	63	15	15	15	13	12	12	12	12
HOUR	6	6	6	6	6	6	18	18	18	18

DATE : 10/ 3/11 PAGE: 3
TIME : 6: 7:51

JOB: 300 Airport PM - 12 hour RUN: 101 Broadway Ahead and 101 Penissula Bac

* MAXIMUM HOURLY CONCENTRATIONS WITH ANY AMBIENT BACKGROUND CONCENTRATIONS (BKG) ADDED
* (MICROGRAMS/M**3)

	*	REC11	REC12	REC13	REC14	REC15	REC16	REC17
MAX+BKG	*	0.6	0.6	0.5	0.5	0.5	0.5	0.5
- BKG	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	*	0.6	0.6	0.5	0.5	0.5	0.5	0.5
WIND DIR	*	228	228	220	220	220	220	220
JULIAN	*	12	12	1	1	1	1	1
HOUR	*	18	18	4	4	4	4	4

THE HIGHEST CONCENTRATION OF 0.80 UG/M**3 OCCURRED AT RECEPTOR REC3 .

CAL3QHCR (Dated: 04244)

DATE : 10/ 3/11 PAGE: 4
TIME : 6: 7:54

JOB: 300 Airport PM - 12 hour RUN: 101 Broadway Ahead and 101 Penissula Bac

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Output Section
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NOTES PERTAINING TO THE REPORT

1. THE HIGHEST AVERAGE IN EACH OF THE FIRST TWO COLUMNS OF EACH TABLE BELOW ARE SUFFIXED BY AN ASTERISK (*). FOR PM OUTPUT, THERE IS ONLY ONE COLUMN AND ASTERISK FOR THE ANNUAL AVERAGE/PERIOD OF CONCERN TABLE.

2. THE NUMBERS IN PARENTHESES ARE THE JULIAN DAY AND ENDING HOUR FOR THE PRECEDING AVERAGE.

3. THE NUMBER OF CALM HOURS USED IN PRODUCING EACH AVERAGE ARE PREFIXED BY A C.

PRIMARY AND SECONDARY AVERAGES.

FIVE HIGHEST 24-HOUR END-TO-END AVERAGE CONCENTRATIONS IN MICROGRAMS/M**3
INCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Rcptr	Highest Ending			Second Highest Ending			Third Highest Ending			Fourth Highest Ending			Fifth Highest Ending		
No.	Conc	Day Hr	Calm	Conc	Day Hr	Calm	Conc	Day Hr	Calm	Conc	Day Hr	Calm	Conc	Day Hr	Calm
1	0.24*	(358,24)	C 0	0.23*	(7,24)	C 0	0.22	(307,24)	C 0	0.22	(322,24)	C 0	0.20	(328,24)	C 0
2	0.24	(358,24)	C 0	0.22	(307,24)	C 0	0.22	(322,24)	C 0	0.22	(7,24)	C 0	0.20	(328,24)	C 0
3	0.24	(358,24)	C 0	0.23	(307,24)	C 0	0.22	(322,24)	C 0	0.22	(7,24)	C 0	0.20	(328,24)	C 0
4	0.24	(358,24)	C 0	0.23	(307,24)	C 0	0.22	(322,24)	C 0	0.21	(7,24)	C 0	0.20	(328,24)	C 0
5	0.24	(358,24)	C 0	0.23	(307,24)	C 0	0.22	(322,24)	C 0	0.20	(328,24)	C 0	0.20	(362,24)	C 0
6	0.20	(307,24)	C 0	0.20	(358,24)	C 0	0.19	(322,24)	C 0	0.18	(328,24)	C 0	0.18	(362,24)	C 0
7	0.22	(358,24)	C 0	0.21	(307,24)	C 0	0.20	(322,24)	C 0	0.19	(328,24)	C 0	0.19	(362,24)	C 0
8	0.19	(358,24)	C 0	0.17	(307,24)	C 0	0.17	(322,24)	C 0	0.17	(328,24)	C 0	0.16	(7,24)	C 0
9	0.19	(358,24)	C 0	0.17	(307,24)	C 0	0.17	(322,24)	C 0	0.17	(328,24)	C 0	0.16	(7,24)	C 0
10	0.19	(358,24)	C 0	0.17	(307,24)	C 0	0.17	(322,24)	C 0	0.17	(328,24)	C 0	0.16	(362,24)	C 0
11	0.19	(358,24)	C 0	0.17	(307,24)	C 0	0.17	(322,24)	C 0	0.16	(362,24)	C 0	0.16	(328,24)	C 0
12	0.19	(358,24)	C 0	0.17	(307,24)	C 0	0.17	(322,24)	C 0	0.16	(362,24)	C 0	0.16	(92,24)	C 0
13	0.15	(358,24)	C 0	0.15	(307,24)	C 0	0.14	(322,24)	C 0	0.14	(328,24)	C 0	0.14	(362,24)	C 0
14	0.15	(358,24)	C 0	0.15	(307,24)	C 0	0.15	(322,24)	C 0	0.14	(362,24)	C 0	0.14	(328,24)	C 0
15	0.15	(358,24)	C 0	0.15	(307,24)	C 0	0.15	(322,24)	C 0	0.14	(362,24)	C 0	0.14	(328,24)	C 0
16	0.15	(358,24)	C 0	0.15	(307,24)	C 0	0.15	(322,24)	C 0	0.14	(328,24)	C 0	0.14	(362,24)	C 0
17	0.15	(307,24)	C 0	0.15	(358,24)	C 0	0.14	(322,24)	C 0	0.14	(357,24)	C 0	0.14	(362,24)	C 0

THE HIGHEST ANNUAL AVERAGE CONCENTRATIONS
IN MICROGRAMS/M**3
INCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Receptor Number	Maximum Conc	Ending Day Hr	Calm
1	0.10*	(365,24) C	2
2	0.10	(365,24) C	2

CAL3QHCR (Dated: 04244)

DATE : 10/ 3/11 PAGE: 5
TIME : 6: 7:54

JOB: 300 Airport PM - 12 hour RUN: 101 Broadway Ahead and 101 Penissula Bac

THE HIGHEST ANNUAL AVERAGE CONCENTRATIONS
IN MICROGRAMS/M**3
INCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Receptor Number	Maximum Conc	Ending Day Hr	Calm
3	0.10	(365,24) C	2
4	0.10	(365,24) C	2
5	0.10	(365,24) C	2
6	0.09	(365,24) C	2
7	0.09	(365,24) C	2
8	0.08	(365,24) C	2
9	0.08	(365,24) C	2
10	0.07	(365,24) C	2
11	0.07	(365,24) C	2
12	0.07	(365,24) C	2
13	0.06	(365,24) C	2
14	0.06	(365,24) C	2
15	0.06	(365,24) C	2
16	0.06	(365,24) C	2
17	0.06	(365,24) C	2

MAXIMUM 24-HOUR AVERAGED LINK CONTRIBUTIONS
IN MICROGRAMS/M**3
INCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Rcptr No.	Total Conc	Ending Day Hr	Ambient Backgnd	Total Link	Link +1	Link +2
1	0.24	(358,24)	0.00	0.24	0.24	0.00
2	0.24	(358,24)	0.00	0.24	0.24	0.00
3	0.24	(358,24)	0.00	0.24	0.24	0.00
4	0.24	(358,24)	0.00	0.24	0.24	0.00
5	0.24	(358,24)	0.00	0.24	0.24	0.00
6	0.20	(307,24)	0.00	0.20	0.20	0.00
7	0.22	(358,24)	0.00	0.22	0.22	0.00
8	0.19	(358,24)	0.00	0.19	0.19	0.00
9	0.19	(358,24)	0.00	0.19	0.19	0.00
10	0.19	(358,24)	0.00	0.19	0.19	0.00
11	0.19	(358,24)	0.00	0.19	0.19	0.00
12	0.19	(358,24)	0.00	0.19	0.19	0.00
13	0.15	(358,24)	0.00	0.15	0.15	0.00
14	0.15	(358,24)	0.00	0.15	0.15	0.00
15	0.15	(358,24)	0.00	0.15	0.15	0.00
16	0.15	(358,24)	0.00	0.15	0.15	0.00
17	0.15	(307,24)	0.00	0.15	0.15	0.00

LINK CONTRIBUTION TABLES

SECOND HIGHEST 24-HOUR AVERAGED LINK CONTRIBUTIONS
IN MICROGRAMS/M**3
INCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Rcptr No.	Total Conc	Ending Day Hr	Ambient Backgnd	Total Link	Link +1	Link +2
1	0.23	(7,24)	0.00	0.23	0.23	0.00
2	0.22	(307,24)	0.00	0.22	0.22	0.00
3	0.23	(307,24)	0.00	0.23	0.23	0.00
4	0.23	(307,24)	0.00	0.23	0.23	0.00
5	0.23	(307,24)	0.00	0.23	0.23	0.00
6	0.20	(358,24)	0.00	0.20	0.20	0.00
7	0.21	(307,24)	0.00	0.21	0.21	0.00
8	0.17	(307,24)	0.00	0.17	0.17	0.00
9	0.17	(307,24)	0.00	0.17	0.17	0.00
10	0.17	(307,24)	0.00	0.17	0.17	0.00
11	0.17	(307,24)	0.00	0.17	0.17	0.00
12	0.17	(307,24)	0.00	0.17	0.17	0.00
13	0.15	(307,24)	0.00	0.15	0.15	0.00
14	0.15	(307,24)	0.00	0.15	0.15	0.00
15	0.15	(307,24)	0.00	0.15	0.15	0.00
16	0.15	(307,24)	0.00	0.15	0.15	0.00
17	0.15	(358,24)	0.00	0.15	0.15	0.00

MAXIMUM ANNUAL AVERAGED LINK CONTRIBUTIONS
IN MICROGRAMS/M**3
INCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Rcptr No.	Total Conc	Ending Day Hr	Ambient Backgnd	Total Link	Link +1	Link +2
1	0.10	(365,24)	0.00	0.10	0.10	0.00
2	0.10	(365,24)	0.00	0.10	0.10	0.00
3	0.10	(365,24)	0.00	0.10	0.10	0.00
4	0.10	(365,24)	0.00	0.10	0.10	0.00
5	0.10	(365,24)	0.00	0.10	0.10	0.00
6	0.09	(365,24)	0.00	0.09	0.09	0.00
7	0.09	(365,24)	0.00	0.09	0.09	0.00
8	0.08	(365,24)	0.00	0.08	0.08	0.00
9	0.08	(365,24)	0.00	0.08	0.08	0.00
10	0.07	(365,24)	0.00	0.07	0.07	0.00
11	0.07	(365,24)	0.00	0.07	0.07	0.00
12	0.07	(365,24)	0.00	0.07	0.07	0.00
13	0.06	(365,24)	0.00	0.06	0.06	0.00
14	0.06	(365,24)	0.00	0.06	0.06	0.00

LINK CONTRIBUTION TABLES

MAXIMUM ANNUAL AVERAGED LINK CONTRIBUTIONS
IN MICROGRAMS/M**3
INCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Rcptr No.	Total Conc	Ending Day Hr	Ambient Backgnd	Total Link	Link +1	Link +2
15	0.06	(365,24)	0.00	0.06	0.06	0.00
16	0.06	(365,24)	0.00	0.06	0.06	0.00
17	0.06	(365,24)	0.00	0.06	0.06	0.00

CALM DURATION FREQUENCY

Hours of Consecutive Calm Winds	Frequency of Occurrence	(Julian day/hour ending) of Significant Occurrences
1	2	(164, 8)(345, 9)

Program terminated normally

DATE : 10/ 3/11 PAGE: 1
TIME : 6: 9:52

JOB: 300 Airport TOC EX - 12 hour RUN: 101 Broadway Ahead

General Information

Run start date: 1/ 1/15 Julian: 1
end date: 12/31/15 Julian: 365

A Tier 2 approach was used for input data preparation.

The MODE flag has been set to P for calculating PM averages.

Ambient background concentrations are included in the averages below.

Site & Meteorological Constants

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 170. CM ATIM = 60.

Met. Sfc. Sta. Id & Yr = 6801 8
Upper Air Sta. Id & Yr = 6801 8

CAUTION: The input years for the Run and Meteorological data
differ. The respective values are: 15 and 8.

Urban mixing heights were processed.

In 2015, Julian day 1 is a Thursday.

The patterns from the input file
have been assigned as follows:

Pattern # 1 is assigned to Monday.
Pattern # 1 is assigned to Tuesday.
Pattern # 1 is assigned to Wednesday.
Pattern # 1 is assigned to Thursday.
Pattern # 1 is assigned to Friday.
Pattern # 1 is assigned to Saturday.
Pattern # 1 is assigned to Sunday.

Link Data Constants - (Variable data in *.LNK file)

LINK DESCRIPTION	LINK COORDINATES (FT) X1	Y1	X2	Y2	LENGTH (FT)	BRG (DEG)	TYPE	H (FT)	W (FT)	NLANES
1. 101 Broadway Ahead	-5000.0	0.0	1000.0	0.0	6000.	90.	AG	0.0	160.0	

Receptor Data

RECEPTOR	COORDINATES (FT) X	Y	Z
1. REC 01	-500.0	750.0	6.0
2. REC 02	-250.0	750.0	6.0
3. REC 03	-50.0	750.0	6.0
4. REC 04	100.0	750.0	6.0
5. REC 05	300.0	750.0	6.0
6. REC 06	-50.0	875.0	6.0
7. REC 07	100.0	810.0	6.0
8. REC 08	-500.0	993.0	6.0
9. REC 09	-250.0	993.0	6.0
10. REC 10	-50.0	993.0	6.0
11. REC 11	100.0	993.0	6.0
12. REC 12	300.0	993.0	6.0
13. REC 13	-500.0	1236.0	6.0
14. REC 14	-250.0	1236.0	6.0
15. REC 15	-50.0	1236.0	6.0
16. REC 16	100.0	1236.0	6.0
17. REC 17	300.0	1236.0	6.0

Model Results

Remarks : In search of the wind direction corresponding
to the maximum concentration, only the first
direction, of the directions with the same maximum
concentrations, is indicated as the maximum.

* MAXIMUM HOURLY CONCENTRATIONS WITH ANY AMBIENT BACKGROUND CONCENTRATIONS (BKG) ADDED
* (MICROGRAMS/M**3)

	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10
MAX+BKG	19.8	19.9	20.0	20.0	20.1	17.6	18.8	15.7	15.7	15.8
- BKG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	19.8	19.9	20.0	20.0	20.1	17.6	18.8	15.7	15.7	15.8
WIND DIR	244	244	244	244	244	244	244	240	240	240
JULIAN	57	57	57	57	57	57	57	35	35	35
HOUR	8	8	8	8	8	8	8	8	8	8

* MAXIMUM HOURLY CONCENTRATIONS WITH ANY AMBIENT BACKGROUND CONCENTRATIONS (BKG) ADDED
* (MICROGRAMS/M**3)

	REC11	REC12	REC13	REC14	REC15	REC16	REC17
MAX+BKG	15.9	15.9	13.0	13.1	13.1	13.2	13.2
- BKG	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	15.9	15.9	13.0	13.1	13.1	13.2	13.2
WIND DIR	244	244	240	240	240	240	240
JULIAN	57	57	35	35	35	35	35
HOUR	8	8	8	8	8	8	8

THE HIGHEST CONCENTRATION OF 20.10 UG/M**3 OCCURRED AT RECEPTOR REC5 .

Output Section

NOTES PERTAINING TO THE REPORT

1. THE HIGHEST AVERAGE IN EACH OF THE FIRST TWO COLUMNS OF EACH TABLE BELOW ARE SUFFIXED BY AN ASTERISK (*). FOR PM OUTPUT, THERE IS ONLY ONE COLUMN AND ASTERISK FOR THE ANNUAL AVERAGE/PERIOD OF CONCERN TABLE.

2. THE NUMBERS IN PARENTHESES ARE THE JULIAN DAY AND ENDING HOUR FOR THE PRECEDING AVERAGE.

3. THE NUMBER OF CALM HOURS USED IN PRODUCING EACH AVERAGE ARE PREFIXED BY A C.

PRIMARY AND SECONDARY AVERAGES.

FIVE HIGHEST 24-HOUR END-TO-END AVERAGE CONCENTRATIONS IN MICROGRAMS/M**3
INCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Rcptr No.	Highest Conc	Highest Ending Day Hr	Highest Calm	Second Highest Conc	Second Highest Ending Day Hr	Second Highest Calm	Third Highest Conc	Third Highest Ending Day Hr	Third Highest Calm	Fourth Highest Conc	Fourth Highest Ending Day Hr	Fourth Highest Calm	Fifth Highest Conc	Fifth Highest Ending Day Hr	Fifth Highest Calm
1	3.94*(	29,24)	C 0	3.87*(	359,24)	C 0	3.66 (	356,24)	C 0	3.59 (	358,24)	C 0	3.53 (	307,24)	C 0
2	3.88 (	29,24)	C 0	3.79 (	359,24)	C 0	3.58 (	358,24)	C 0	3.54 (	307,24)	C 0	3.42 (	356,24)	C 0
3	3.78 (	29,24)	C 0	3.69 (	359,24)	C 0	3.57 (	358,24)	C 0	3.54 (	307,24)	C 0	3.37 (	350,24)	C 0
4	3.65 (	29,24)	C 0	3.58 (	359,24)	C 0	3.54 (	307,24)	C 0	3.54 (	358,24)	C 0	3.37 (	350,24)	C 0
5	3.55 (	307,24)	C 0	3.47 (	358,24)	C 0	3.35 (	350,24)	C 0	3.34 (	359,24)	C 0	3.30 (	29,24)	C 0
6	3.15 (	29,24)	C 0	3.14 (	359,24)	C 0	3.12 (	358,24)	C 0	3.09 (	307,24)	C 0	2.94 (	350,24)	C 0
7	3.31 (	29,24)	C 0	3.31 (	358,24)	C 0	3.30 (	307,24)	C 0	3.30 (	359,24)	C 0	3.15 (	350,24)	C 0
8	2.99 (	29,24)	C 0	2.96 (	359,24)	C 0	2.85 (	358,24)	C 0	2.75 (	307,24)	C 0	2.65 (	356,24)	C 0
9	2.86 (	29,24)	C 0	2.86 (	359,24)	C 0	2.83 (	358,24)	C 0	2.76 (	307,24)	C 0	2.61 (	350,24)	C 0
10	2.80 (	358,24)	C 0	2.77 (	307,24)	C 0	2.74 (	359,24)	C 0	2.68 (	29,24)	C 0	2.61 (	350,24)	C 0
11	2.77 (	307,24)	C 0	2.76 (	358,24)	C 0	2.63 (	359,24)	C 0	2.60 (	350,24)	C 0	2.54 (	357,24)	C 0
12	2.78 (	307,24)	C 0	2.71 (	358,24)	C 0	2.58 (	350,24)	C 0	2.49 (	357,24)	C 0	2.40 (	48,24)	C 0
13	2.41 (	359,24)	C 0	2.36 (	358,24)	C 0	2.33 (	29,24)	C 0	2.25 (	307,24)	C 0	2.11 (	350,24)	C 0
14	2.33 (	358,24)	C 0	2.29 (	359,24)	C 0	2.26 (	307,24)	C 0	2.15 (	29,24)	C 0	2.12 (	350,24)	C 0
15	2.30 (	358,24)	C 0	2.28 (	307,24)	C 0	2.15 (	359,24)	C 0	2.11 (	350,24)	C 0	2.06 (	357,24)	C 0
16	2.28 (	307,24)	C 0	2.27 (	358,24)	C 0	2.10 (	350,24)	C 0	2.04 (	357,24)	C 0	2.01 (	48,24)	C 0
17	2.28 (	307,24)	C 0	2.24 (	358,24)	C 0	2.08 (	350,24)	C 0	2.03 (	357,24)	C 0	2.01 (	48,24)	C 0

THE HIGHEST ANNUAL AVERAGE CONCENTRATIONS
IN MICROGRAMS/M**3
INCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Receptor Number	Maximum Conc	Ending Day Hr	Calm
1	1.22*	(365,24)	C 2
2	1.21	(365,24)	C 2

THE HIGHEST ANNUAL AVERAGE CONCENTRATIONS
IN MICROGRAMS/M**3
INCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Receptor Number	Maximum Conc	Ending Day Hr	Calm
3	1.19	(365,24)	C 2
4	1.17	(365,24)	C 2
5	1.14	(365,24)	C 2
6	1.01	(365,24)	C 2
7	1.08	(365,24)	C 2
8	0.91	(365,24)	C 2
9	0.89	(365,24)	C 2
10	0.87	(365,24)	C 2
11	0.86	(365,24)	C 2
12	0.83	(365,24)	C 2
13	0.71	(365,24)	C 2
14	0.69	(365,24)	C 2
15	0.68	(365,24)	C 2
16	0.66	(365,24)	C 2
17	0.64	(365,24)	C 2

MAXIMUM 24-HOUR AVERAGED LINK CONTRIBUTIONS

IN MICROGRAMS/M**3
INCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Rcptr No.	Total Conc	Ending Day Hr	Ambient Backgnd	Total Link	Link +1
1	3.94 (	29,24)	0.00	3.94	3.94
2	3.88 (	29,24)	0.00	3.88	3.88
3	3.78 (	29,24)	0.00	3.78	3.78
4	3.65 (	29,24)	0.00	3.65	3.65
5	3.55 (307,	24)	0.00	3.55	3.55
6	3.15 (	29,24)	0.00	3.15	3.15
7	3.31 (	29,24)	0.00	3.31	3.31
8	2.99 (	29,24)	0.00	2.99	2.99
9	2.86 (	29,24)	0.00	2.86	2.86
10	2.80 (358,	24)	0.00	2.80	2.80
11	2.77 (307,	24)	0.00	2.77	2.77
12	2.78 (307,	24)	0.00	2.78	2.78
13	2.41 (359,	24)	0.00	2.41	2.41
14	2.33 (358,	24)	0.00	2.33	2.33
15	2.30 (358,	24)	0.00	2.30	2.30
16	2.28 (307,	24)	0.00	2.28	2.28
17	2.28 (307,	24)	0.00	2.28	2.28

LINK CONTRIBUTION TABLES

SECOND HIGHEST 24-HOUR AVERAGED LINK CONTRIBUTIONS
IN MICROGRAMS/M**3
INCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Rcptr No.	Total Conc	Ending Day Hr	Ambient Backgnd	Total Link	Link +1
1	3.87 (359,	24)	0.00	3.87	3.87
2	3.79 (359,	24)	0.00	3.79	3.79
3	3.69 (359,	24)	0.00	3.69	3.69
4	3.58 (359,	24)	0.00	3.58	3.58
5	3.47 (358,	24)	0.00	3.47	3.47
6	3.14 (359,	24)	0.00	3.14	3.14
7	3.31 (358,	24)	0.00	3.31	3.31
8	2.96 (359,	24)	0.00	2.96	2.96
9	2.86 (359,	24)	0.00	2.86	2.86
10	2.77 (307,	24)	0.00	2.77	2.77
11	2.76 (358,	24)	0.00	2.76	2.76
12	2.71 (358,	24)	0.00	2.71	2.71
13	2.36 (358,	24)	0.00	2.36	2.36
14	2.29 (359,	24)	0.00	2.29	2.29
15	2.28 (307,	24)	0.00	2.28	2.28
16	2.27 (358,	24)	0.00	2.27	2.27
17	2.24 (358,	24)	0.00	2.24	2.24

MAXIMUM ANNUAL AVERAGED LINK CONTRIBUTIONS
IN MICROGRAMS/M**3
INCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Rcptr No.	Total Conc	Ending Day Hr	Ambient Backgnd	Total Link	Link +1
1	1.22 (365,	24)	0.00	1.22	1.22
2	1.21 (365,	24)	0.00	1.21	1.21
3	1.19 (365,	24)	0.00	1.19	1.19
4	1.17 (365,	24)	0.00	1.17	1.17
5	1.14 (365,	24)	0.00	1.14	1.14
6	1.01 (365,	24)	0.00	1.01	1.01
7	1.08 (365,	24)	0.00	1.08	1.08
8	0.91 (365,	24)	0.00	0.91	0.91
9	0.89 (365,	24)	0.00	0.89	0.89
10	0.87 (365,	24)	0.00	0.87	0.87
11	0.86 (365,	24)	0.00	0.86	0.86
12	0.83 (365,	24)	0.00	0.83	0.83
13	0.71 (365,	24)	0.00	0.71	0.71
14	0.69 (365,	24)	0.00	0.69	0.69

LINK CONTRIBUTION TABLES

MAXIMUM ANNUAL AVERAGED LINK CONTRIBUTIONS
IN MICROGRAMS/M**3
INCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Rcptr No.	Total Conc	Ending Day Hr	Ambient Backgnd	Total Link	Link +1
15	0.68 (365,	24)	0.00	0.68	0.68
16	0.66 (365,	24)	0.00	0.66	0.66
17	0.64 (365,	24)	0.00	0.64	0.64

CALM DURATION FREQUENCY

Hours of Consecutive Calm Winds	Frequency of Occurrence	(Julian day/hour ending) of Significant Occurrences
1	2	(164, 8)(345, 9)

Program terminated normally

DATE : 10/ 3/11 PAGE: 1
TIME : 6:15:15

JOB: 300 Airport TOC Run -12 hour RUN: 101 Broadway Ahead and 101 Penissula Bac

General Information

Run start date: 1/ 1/15 Julian: 1
end date: 12/31/15 Julian: 365

A Tier 2 approach was used for input data preparation.

The MODE flag has been set to P for calculating PM averages.

Ambient background concentrations are included in the averages below.

Site & Meteorological Constants

VS = 0.0 CM/S VD = 0.0 CM/S Z0 = 170. CM ATIM = 60.

Met. Sfc. Sta. Id & Yr = 6801 8
Upper Air Sta. Id & Yr = 6801 8

CAUTION: The input years for the Run and Meteorological data
differ. The respective values are: 15 and 8.

Urban mixing heights were processed.

In 2015, Julian day 1 is a Thursday.

The patterns from the input file
have been assigned as follows:

Pattern # 1 is assigned to Monday.
Pattern # 1 is assigned to Tuesday.
Pattern # 1 is assigned to Wednesday.
Pattern # 1 is assigned to Thursday.
Pattern # 1 is assigned to Friday.
Pattern # 1 is assigned to Saturday.
Pattern # 1 is assigned to Sunday.

Link Data Constants - (Variable data in *.LNK file)

LINK DESCRIPTION	LINK COORDINATES (FT) X1	Y1	X2	Y2	LENGTH (FT)	BRG (DEG)	TYPE	H (FT)	W (FT)	NLANES
2. 101 Broadway Ahead	-5000.0	0.0	1000.0	0.0	6000.	90.	AG	0.0	160.0	
24. 101 Penissula Back	1000.0	0.0	5000.0	-4100.0	5728.	136.	AG	0.0	160.0	

Receptor Data

RECEPTOR	COORDINATES (FT) X	Y	Z
1. REC 01	-500.0	750.0	6.0
2. REC 02	-250.0	750.0	6.0
3. REC 03	-50.0	750.0	6.0
4. REC 04	100.0	750.0	6.0
5. REC 05	300.0	750.0	6.0
6. REC 06	-50.0	875.0	6.0
7. REC 07	100.0	810.0	6.0
8. REC 08	-500.0	993.0	6.0
9. REC 09	-250.0	993.0	6.0
10. REC 10	-50.0	993.0	6.0
11. REC 11	100.0	993.0	6.0
12. REC 12	300.0	993.0	6.0
13. REC 13	-500.0	1236.0	6.0
14. REC 14	-250.0	1236.0	6.0
15. REC 15	-50.0	1236.0	6.0
16. REC 16	100.0	1236.0	6.0
17. REC 17	300.0	1236.0	6.0

Model Results

Remarks : In search of the wind direction corresponding
to the maximum concentration, only the first
direction, of the directions with the same maximum
concentrations, is indicated as the maximum.

* MAXIMUM HOURLY CONCENTRATIONS WITH ANY AMBIENT BACKGROUND CONCENTRATIONS (BKG) ADDED
(MICROGRAMS/M**3)

	REC1	REC2	REC3	REC4	REC5	REC6	REC7	REC8	REC9	REC10
MAX+BKG	10.9	10.9	11.0	11.0	11.0	9.6	10.3	8.6	8.6	8.7
- BKG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	10.9	10.9	11.0	11.0	11.0	9.6	10.3	8.6	8.6	8.7
WIND DIR	244	244	245	244	244	244	244	243	244	243
JULIAN	7	7	322	7	7	7	7	11	7	11
HOUR	9	9	21	9	9	9	9	9	9	9

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* MAXIMUM HOURLY CONCENTRATIONS WITH ANY AMBIENT BACKGROUND CONCENTRATIONS (BKG) ADDED
* (MICROGRAMS/M**3)

	*	REC11	REC12	REC13	REC14	REC15	REC16	REC17
MAX+BKG	*	8.7	8.7	7.1	7.2	7.2	7.2	7.2
- BKG	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	*	8.7	8.7	7.1	7.2	7.2	7.2	7.2
WIND DIR	*	244	244	237	239	237	243	243
JULIAN	*	7	7	310	335	310	11	11
HOUR	*	9	9	21	21	21	9	9

THE HIGHEST CONCENTRATION OF 11.00 UG/M**3 OCCURRED AT RECEPTOR REC4 .

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Output Section
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NOTES PERTAINING TO THE REPORT

1. THE HIGHEST AVERAGE IN EACH OF THE FIRST TWO COLUMNS OF EACH TABLE BELOW ARE SUFFIXED BY AN ASTERISK (*). FOR PM OUTPUT, THERE IS ONLY ONE COLUMN AND ASTERISK FOR THE ANNUAL AVERAGE/PERIOD OF CONCERN TABLE.

2. THE NUMBERS IN PARENTHESES ARE THE JULIAN DAY AND ENDING HOUR FOR THE PRECEDING AVERAGE.

3. THE NUMBER OF CALM HOURS USED IN PRODUCING EACH AVERAGE ARE PREFIXED BY A C.

PRIMARY AND SECONDARY AVERAGES.

FIVE HIGHEST 24-HOUR END-TO-END AVERAGE CONCENTRATIONS IN MICROGRAMS/M**3
INCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Rcptr	Highest Ending			Second Highest Ending			Third Highest Ending			Fourth Highest Ending			Fifth Highest Ending		
No.	Conc	Day Hr	Calm	Conc	Day Hr	Calm	Conc	Day Hr	Calm	Conc	Day Hr	Calm	Conc	Day Hr	Calm
1	3.42*(358,24)	C 0		3.21*(7,24)	C 0		3.09 (322,24)	C 0		3.03 (364,24)	C 0		3.02 (362,24)	C 0	
2	3.42 (358,24)	C 0		3.17 (7,24)	C 0		3.09 (322,24)	C 0		3.05 (364,24)	C 0		3.02 (362,24)	C 0	
3	3.42 (358,24)	C 0		3.12 (7,24)	C 0		3.10 (322,24)	C 0		3.05 (364,24)	C 0		3.02 (362,24)	C 0	
4	3.42 (358,24)	C 0		3.10 (322,24)	C 0		3.05 (364,24)	C 0		3.04 (7,24)	C 0		3.02 (362,24)	C 0	
5	3.40 (358,24)	C 0		3.10 (322,24)	C 0		3.02 (307,24)	C 0		3.02 (357,24)	C 0		3.01 (362,24)	C 0	
6	3.02 (358,24)	C 0		2.73 (322,24)	C 0		2.69 (307,24)	C 0		2.68 (7,24)	C 0		2.68 (362,24)	C 0	
7	3.21 (358,24)	C 0		2.91 (322,24)	C 0		2.85 (362,24)	C 0		2.85 (364,24)	C 0		2.84 (307,24)	C 0	
8	2.73 (358,24)	C 0		2.54 (7,24)	C 0		2.47 (322,24)	C 0		2.43 (362,24)	C 0		2.43 (307,24)	C 0	
9	2.73 (358,24)	C 0		2.47 (322,24)	C 0		2.46 (7,24)	C 0		2.44 (362,24)	C 0		2.43 (307,24)	C 0	
10	2.73 (358,24)	C 0		2.48 (322,24)	C 0		2.44 (307,24)	C 0		2.43 (362,24)	C 0		2.40 (357,24)	C 0	
11	2.73 (358,24)	C 0		2.48 (322,24)	C 0		2.44 (307,24)	C 0		2.43 (362,24)	C 0		2.41 (357,24)	C 0	
12	2.68 (358,24)	C 0		2.48 (322,24)	C 0		2.44 (307,24)	C 0		2.41 (357,24)	C 0		2.39 (362,24)	C 0	
13	2.30 (358,24)	C 0		2.06 (322,24)	C 0		2.05 (362,24)	C 0		2.05 (307,24)	C 0		2.04 (7,24)	C 0	
14	2.30 (358,24)	C 0		2.07 (322,24)	C 0		2.06 (362,24)	C 0		2.05 (307,24)	C 0		2.00 (357,24)	C 0	
15	2.29 (358,24)	C 0		2.08 (322,24)	C 0		2.05 (307,24)	C 0		2.05 (362,24)	C 0		2.01 (357,24)	C 0	
16	2.26 (358,24)	C 0		2.08 (322,24)	C 0		2.05 (307,24)	C 0		2.02 (362,24)	C 0		2.01 (357,24)	C 0	
17	2.19 (358,24)	C 0		2.08 (322,24)	C 0		2.06 (307,24)	C 0		1.99 (357,24)	C 0		1.96 (335,24)	C 0	

THE HIGHEST ANNUAL AVERAGE CONCENTRATIONS
IN MICROGRAMS/M**3
INCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Receptor Number	Maximum Conc	Ending Day Hr	Calm
1	1.37*	(365,24) C	2
2	1.37	(365,24) C	2

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THE HIGHEST ANNUAL AVERAGE CONCENTRATIONS
IN MICROGRAMS/M**3
INCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Receptor Number	Maximum Conc	Ending Day Hr	Calm
3	1.36	(365,24) C	2
4	1.36	(365,24) C	2
5	1.34	(365,24) C	2
6	1.17	(365,24) C	2
7	1.26	(365,24) C	2
8	1.04	(365,24) C	2
9	1.04	(365,24) C	2
10	1.03	(365,24) C	2
11	1.02	(365,24) C	2
12	1.00	(365,24) C	2
13	0.83	(365,24) C	2
14	0.83	(365,24) C	2
15	0.82	(365,24) C	2
16	0.81	(365,24) C	2
17	0.80	(365,24) C	2

MAXIMUM 24-HOUR AVERAGED LINK CONTRIBUTIONS
IN MICROGRAMS/M**3
INCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Rcptr No.	Total Conc	Ending Day Hr	Ambient Backgnd	Total Link	Link +1	Link +2
1	3.42	(358,24)	0.00	3.42	3.42	0.00
2	3.42	(358,24)	0.00	3.42	3.42	0.00
3	3.42	(358,24)	0.00	3.42	3.42	0.00
4	3.42	(358,24)	0.00	3.42	3.42	0.00
5	3.40	(358,24)	0.00	3.40	3.40	0.00
6	3.02	(358,24)	0.00	3.02	3.02	0.00
7	3.21	(358,24)	0.00	3.21	3.21	0.00
8	2.73	(358,24)	0.00	2.73	2.73	0.00
9	2.73	(358,24)	0.00	2.73	2.73	0.00
10	2.73	(358,24)	0.00	2.73	2.73	0.00
11	2.73	(358,24)	0.00	2.73	2.73	0.00
12	2.68	(358,24)	0.00	2.68	2.68	0.00
13	2.30	(358,24)	0.00	2.30	2.30	0.00
14	2.30	(358,24)	0.00	2.30	2.30	0.00
15	2.29	(358,24)	0.00	2.29	2.29	0.00
16	2.26	(358,24)	0.00	2.26	2.26	0.00
17	2.19	(358,24)	0.00	2.19	2.19	0.00

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LINK CONTRIBUTION TABLES

SECOND HIGHEST 24-HOUR AVERAGED LINK CONTRIBUTIONS
IN MICROGRAMS/M**3
INCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Rcptr No.	Total Conc	Ending Day Hr	Ambient Backgnd	Total Link	Link +1	Link +2
1	3.21	(7,24)	0.00	3.21	3.21	0.00
2	3.17	(7,24)	0.00	3.17	3.17	0.00
3	3.12	(7,24)	0.00	3.12	3.12	0.00
4	3.10	(322,24)	0.00	3.10	3.10	0.00
5	3.10	(322,24)	0.00	3.10	3.10	0.00
6	2.73	(322,24)	0.00	2.73	2.73	0.00
7	2.91	(322,24)	0.00	2.91	2.91	0.00
8	2.54	(7,24)	0.00	2.54	2.54	0.00
9	2.47	(322,24)	0.00	2.47	2.47	0.00
10	2.48	(322,24)	0.00	2.48	2.48	0.00
11	2.48	(322,24)	0.00	2.48	2.48	0.00
12	2.48	(322,24)	0.00	2.48	2.48	0.00
13	2.06	(322,24)	0.00	2.06	2.06	0.00
14	2.07	(322,24)	0.00	2.07	2.07	0.00
15	2.08	(322,24)	0.00	2.08	2.08	0.00
16	2.08	(322,24)	0.00	2.08	2.08	0.00
17	2.08	(322,24)	0.00	2.08	2.08	0.00

MAXIMUM ANNUAL AVERAGED LINK CONTRIBUTIONS
IN MICROGRAMS/M**3
INCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Rcptr No.	Total Conc	Ending Day Hr	Ambient Backgnd	Total Link	Link +1	Link +2
1	1.37	(365,24)	0.00	1.37	1.37	0.00
2	1.37	(365,24)	0.00	1.37	1.37	0.00
3	1.36	(365,24)	0.00	1.36	1.36	0.00
4	1.36	(365,24)	0.00	1.36	1.36	0.00
5	1.34	(365,24)	0.00	1.34	1.34	0.00
6	1.17	(365,24)	0.00	1.17	1.17	0.00
7	1.26	(365,24)	0.00	1.26	1.26	0.00
8	1.04	(365,24)	0.00	1.04	1.04	0.00
9	1.04	(365,24)	0.00	1.04	1.04	0.00
10	1.03	(365,24)	0.00	1.03	1.03	0.00
11	1.02	(365,24)	0.00	1.02	1.02	0.00
12	1.00	(365,24)	0.00	1.00	1.00	0.00
13	0.83	(365,24)	0.00	0.83	0.83	0.00
14	0.83	(365,24)	0.00	0.83	0.83	0.00

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LINK CONTRIBUTION TABLES

MAXIMUM ANNUAL AVERAGED LINK CONTRIBUTIONS
IN MICROGRAMS/M**3
INCLUDING AMBIENT BACKGROUND CONCENTRATIONS.

Rcptr No.	Total Conc	Ending Day Hr	Ambient Backgnd	Total Link	Link +1	Link +2
15	0.82	(365,24)	0.00	0.82	0.82	0.00
16	0.81	(365,24)	0.00	0.81	0.81	0.00
17	0.80	(365,24)	0.00	0.80	0.80	0.00

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JOB: 300 Airport TOC Run -12 hour RUN: 101 Broadway Ahead and 101 Penissula Bac

CALM DURATION FREQUENCY

Hours of Consecutive Calm Winds	Frequency of Occurrence	(Julian day/hour ending) of Significant Occurrences
1	2	(164, 8)(345, 9)

Program terminated normally