There is no discussion about significant impacts on health due to air pollution from freeways. This must be discussed in the EIR as these health hazards will be a significant impact to the residents of this development that will be built so close to the Foothill Freeway. Data must be collected about air quality in the area from the freeway that will produce the health hazards that we will discuss in our response. If this is not done, the EIR must make a finding that residents of this project will be significantly impacted from freeway air pollution.

Air pollution from busy roads linked to shorter life spans for nearby residents

Dutch researchers looked at the effects of long-term exposure to traffic-related air pollutants on 5,000 adults. They found that people who lived near a main road were almost twice as likely to die from heart or lung disease and 1.4 times as likely to die from any cause compared with those who lived in less-trafficked areas. Researchers say these results are similar to those seen in previous US studies on the effects of long-term exposure to traffic-related air pollution. The authors say traffic emissions contain many pollutants that might be responsible for the health risks, such as ultrafine particles, diesel soot, and nitrogen oxides, which have been linked to cardiovascular and respiratory problems.

Hoek, Brunekreef, Goldbohn, Fischer, van den Brandt. (2002). Association between mortality and indicators of traffic-related air pollution in the Netherlands: a cohort study. Lancet, *360 (9341): 1203-9.*

Truck traffic linked to childhood asthma hospitalizations

A study in Erie County, New York (excluding the city of Buffalo) found that children living in neighborhoods with heavy truck traffic within 200 meters of their homes had increased risks of asthma hospitalization. The study examined hospital admission for asthma amongst children ages 0-14, and residential proximity to roads with heavy traffic.

Lin, Munsie, Hwang, Fitzgerald, and Cayo. (2002). Childhood Asthma Hospitalization and Residential Exposure to State Route Traffic. Environmental Research, *Section A, Vol. 88, pp. 73-81.*

Pregnant women who live near high traffic areas more likely to have premature and low birth weight babies

Researchers observed an approximately 10-20% increase in the risk of premature birth and low birth weight for infants born to women living near high traffic areas in Los Angeles County. In particular, the researchers found that for each one part per million increase in annual average carbon monoxide concentrations where the women lived,

there was a 19% and 11% increase in risk for low birth weight and premature births, respectively.

Wilhelm, Ritz. (2002). Residential Proximity to Traffic and Adverse Birth Outcomes in Los Angeles County, California, 1994-1996. Environmental Health Perspectives. *doi: 10.1289/ehp.5688.*

Traffic-related air pollution associated with respiratory symptoms in two year old children

This cohort study found that two year old children who are exposed to higher levels of traffic-related air pollution are more likely to have self-reported respiratory illnesses, including wheezing, ear/nose/throat infections, and reporting of physician-diagnosed asthma, flu or serious cold.

Brauer et al. (2002). Air Pollution from Traffic and the Development of Respiratory Infections and Asthmatic and Allergic Symptoms in Children. Am J Respiratory and Critical Care Medicine. *Vol. 166 pp 1092-1098.*

People who live near freeways exposed to 25 times more particle pollution

Studies conducted in the vicinity of Interstates 405 and 710 in Southern California found that the number of ultrafine particles in the air was approximately 25 times more concentrated near the freeways and that pollution levels gradually decrease back to normal (background) levels around 300 meters, or 990 feet, downwind from the freeway. The researchers note that motor vehicles are the most significant source of ultrafine particles, which have been linked to increases in mortality and morbidity. Recent research concludes that ultrafine particles are more toxic than larger particles with the same chemical composition. Moreover, the researchers found considerably higher concentrations of carbon monoxide pollution near the freeways.

Zhu, Hinds, Kim, Sioutas. Concentration and size distribution of ultrafine particles near a major highway. Journal of the Air and Waste Management Association. *September 2002. Zhu, Hinds, Kim, Shen, Sioutas. Study of ultrafine particles near a major highway with heavy-duty diesel traffic.* Atmospheric Environment. *36(2002), 4323-4335.*

Asthma more common for children living near freeways.

A study of nearly 10,000 children in England found that wheezing illness, including asthma, was more likely with increasing proximity of a child's home to main roads. The risk was greatest for children living within 90 meters of the road.

Venn et al. (2001). Living Near A Main Road and the Risk of Wheezing Illness in Children. American Journal of Respiratory and Critical Care Medicine. *Vol. 164, pp 2177-2180.*

A study of 1,068 Dutch children found that asthma, wheeze, cough, and runny nose were significantly more common in children living within 100 meters of freeways. Increasing density of truck traffic was also associated with significantly higher asthma levels - particularly in girls.

van Vliet et al. (1997). Motor exhaust and chronic respiratory symptoms in children living near freeways. Environmental Research. *74:12-132.*

Children living near busy roads more likely to develop cancer

A 2000 Denver study showed that children living within 250 yards of streets or highways with 20,000 vehicles per day are six times more likely to develop all types of cancer and eight times more likely to get leukemia. The study looked at associations between traffic density, power lines, and all childhood cancers with measurements obtained in 1979 and 1990. It found a weak association from power lines, but a strong association with highways. It suggested that benzene pollution might be the cancer promoter causing the problem.

Pearson et al. (2000). Distance-weighted traffic density in proximity to a home is a risk factor for leukemia and other childhood cancers. Journal of Air and Waste Management Association *50:175-180.*

Emissions from motor vehicles dominate cancer risk

The most comprehensive study of urban toxic air pollution ever undertaken shows that motor vehicles and other mobile sources of air pollution are the predominant source of cancer-causing air pollutants in Southern California. Overall, the study showed that motor vehicles and other mobile sources accounted for about 90% of the cancer risk from toxic air pollution, most of which is from diesel soot (70% of the cancer risk). Industries and other stationary sources accounted for the remaining 10%. The study showed that the highest risk is in urban areas where there is heavy traffic and high concentrations of population and industry.

South Coast Air Quality Management District. Multiple Air Toxics Exposure Study-II. *March 2000.*

Cancer risk higher near major sources of air pollution, including highways

A 1997 English study found a cancer corridor within three miles of highways, airports, power plants, and other major polluters. The study examined children who died of leukemia or other cancers from the years 1953-1980, where they were born and where they died. It found that the greatest danger lies a few hundred yards from the highway or pollution facility and decreases as you get away from the facility.

Knox and Gilman (1997). Hazard proximities of childhood cancers in Great Britain from 1953-1980. Journal of Epidemiology and Community Health. *51: 151-159.*

Proximity of a child's residence to major roads linked to hospital admissions for asthma

A study in Birmingham, United Kingdom, determined that living near major roads was associated with the risk of hospital admission for asthma in children younger than 5 years of age. The area of residence and traffic flow patterns were compared for children admitted to the hospital for asthma, children admitted for nonrespiratory reasons, and a random sample of children from the community. Children admitted with an asthma diagnosis were significantly more likely to live in an area with high traffic flow (> 24,000 vehicles/ 24 hours) located along the nearest segment of main road than were children admitted for nonrespiratory reasons or children form the community.

Edwards, J., S. Walters, et al. (1994). Hospital admissions for asthma in preschool children: relationship to major roads in Birmingham, United Kingdom. Archives of Environmental Health. *49(4): 223-7.*

Exposure to carcinogenic benzene higher for children living near high traffic areas

German researchers compared forty-eight children who lived in a central urban area with high traffic density with seventy-two children who lived in a small city with low traffic density. They found that the blood levels of benzene in children who lived in the high-traffic-density area were 71% higher than those of children who lived in the low-traffic-density area. Blood levels of toluene and carboxyhemoglobin (formed after breathing carbon monoxide) were also significantly elevated (56% and 33% higher, respectively) among children regularly exposed to vehicle emissions. Aplastic anemia and leukemia are associated with excessive exposure to benzene.

Jermann E, Hajimiragha H, Brockhaus A, Freier I, Ewers U, Roscovanu A: Exposure of children to benzene and other motor vehicle emissions. Zentralblatt fur Hygiene und Umweltmedizin *189:50-61, 1989.*

Freeway Exhaust May Accelerate Lung Conditions

Vehicle emissions are responsible for a great deal of urban air pollution, but their effects on chronic lung diseases are not as widely understood. Michael Kleinman, a community and environmental health and medicine researcher, is discovering how environmental exposures in close proximity to sources of vehicle exhaust from heavily trafficked freeways accelerate lung conditions including asthma. Kleinman uses the nation's most busy freeway interchange, located just south of downtown Los Angeles, for his tests, where he places mice already exposed to asthma-like allergens in specially developed exposure chambers next to the freeway traffic. He also tests exposures at distances progressively further away, 100 and 500 meters downwind from the interchange. He has found that the closer the mice are to traffic, the more prone they are to suffer from lung-based allergic reactions from pre-existing conditions. "Ultrafine particulate matter from the exhaust is 10 times higher next to the freeway than at other testing sites," Kleinman says. "And since diesel trucks make up 20 to 30 percent of the traffic, there may be a

correlation, especially since these trucks do not face the same exhaust standards in California that cars do." –University of Irvine public release August 22, 2002 on findings by its researchers.

With all the studies that have been conducted on the impacts of air pollution on residents that live close to a freeway or major roadway, this EIR must have some discussion on this issue and the significance of this impact on this project's residents.

Also because of the greatly increased health risk from air pollution to residents living near freeways, we recommend the following mitigation measures. **All prospective property residents must be given information that cite studies and discuss the potential health hazards from residing close to freeways as we have done above.** The health hazard impacts of freeway air pollution on residents are severe. **Another mitigation measure that should be included in the EIR is that no dwelling or outside pad area that will be utilized by residents shall be within 250 yards of the edge of the Freeway.** This buffer zone will greatly diminish the project residents health hazards from air pollution. The health hazard impacts decrease as residents reside further from the freeway.

No air pollution data was gathered in the area. Data for the report was gathered from reporting stations miles away that may not have similar conditions to the site area. The project site is in a canyon that may concentrate pollutants at higher levels than in open areas. Therefore, data should be gathered on air pollution in the Sunland Tujunga La Tuna Canyon area.

Pollutant levels for Peak Hour AM and PM traffic in the area must be discussed for other pollutants besides CO concentrations. The Peak Hour Pollutants may exceed significant thresholds for all the pollutant categories for the project and the alternatives. Mitigation measures must be recommended to try to protect the sensitive receptors from this effect.

The impacts of construction impact include potential impacts from PM10 generated from earthmoving and grading. However, it does not include the impact of expected increases in PM10 due to blasting of areas. Blasting will significantly increase the amount of dirt that becomes airborne. Thus this event will substantially increase the PM10 generated from the development. Also construction impacts do not include the use of trash trucks to haul away debris generated during the grading and site improvement process. The number of these additional trucks and the impact on the site and surrounding area must be discussed. These additional vehicle trips will increase the amount of air pollution in the surrounding areas.

The air pollution created from the construction activities will be significantly greater than discussed in the EIR if more equipment is needed to accomplish the grading and landform alterations as we have discussed in other sections. This may mean that the construction activities may have a significant impact on Carbon Monoxide, Volatile Organic Compounds, and Sulfur Oxides than was previously discussed. If more construction vehicles are actually needed to accomplish the work in the planned timeframe, the EIR must be modified to reflect the increases in different types of pollution generated by the construction activities.

As there will be a significant impact from PM10 generated during the construction activities, I believe that the developer as a mitigation measure be allowed to grade no more than 10 acres per day between both Development Areas A and B. The developer must devise more ways to mitigate the construction impacts to air pollution, noise, and all other areas that the development will impact our community.

Also, the impacts of vehicle trips on the surrounding local area (outside the project area) made by residents of the development after it is completed must be discussed. The air pollution generated by their activity may increase pollution levels to significant impact in the surrounding areas. This impact could not be mitigated and would remain significant to the community.

This section should include a discussion of the impact of the loss of trees to air quality. The loss of trees is significant and will probably have a significant impact on air quality. A discussion of the benefit of trees is found on the California Air Resources Board Website.

Trees and Air Quality

This page updated July 17, 2001.

TREES & AIR QUALITY

The right tree can improve air quality as well as provide other benefits such as shade and beauty. However, some trees can have adverse effects on air quality and, because of their pollens, can even affect people's ability to breathe. This site provides an introduction to the effects of trees on air quality and identifies some websites that provide additional information.

BENEFITS OF TREES ON AIR QUALITY

Trees deliver air quality benefits by the cooling effect of their shade and by removing certain pollutants.

COOLING

By cooling, trees reduce evaporative emissions from vehicles and other fuel storage. By cooling homes and offices, trees reduce power generation emissions. General cooling also reduces the speed of chemical reactions that lead to the formation of ozone and particulate matter. By using models at ARB or at the Federal EPA, we can predict how well cooling by trees helps improve air quality.

Sacramento Shade *provides an excellent website to learn about the savings in energy and air quality, as well as the real estate enhancements that trees can provide. The site is located at: http://www.smud.org/sacshade/index.html*

POLLUTANT REMOVAL OR DEPOSITION

Leaves and needles have surface area that can allow for removal (deposition) of ozone, nitrogen dioxide, and to a lesser extent particulate matter. Several different factors affect pollutant removal. These factors include how long a parcel of air is in contact with the leaf, the amount of leaf area, as well as the specific pollutant of interest. Because deposition has an affect on air quality, the Air Resources Board (ARB) is interested in this phenomenon. For example, the ARB support a study to evaluate how well agricultural crops remove ozone. For more on the California Ozone Deposition Experiment (CODE) please refer to: http://blg.oce.orst.edu/code91/twinotter/description/synopsis.html

In addition, an excellent discussion of the impact of trees on ozone removal can be found for ***Blodgett Forest*** *at: http://www.cnr.berkeley.edu/forestry/bs_14.html*

The DEIR must include a more inclusive discussion of the impacts of air pollution that have been detailed in this response.

Section IV. C HYDROLOGY AND WATER QUALITY

The EIR should be discussing possible water flows due to a 100 year storm rather than a 50 year storm. Weather phenomena like El Nino have made the possibility of more severe storms.

The EIR also does not address floods or debris flows after wildfires. Please refer to our discussion in the geology and soils section. The EIR must discuss these impacts and the significance on the project and surrounding areas. This can be a real problem.

I have included an article from the Los Angeles Times November 4, 2003 edition of the paper titled "**Fires Bring Hazard of Landslides**".

Flood control experts fear that wildfires have created potentially catastrophic landslide hazards in charred areas throughout Southern

California *-- especially in San Bernardino County, where as many as 50 catch basins built to block falling boulders, mud and trees may not be adequate.*

Debris flows, as the deadliest form of the slides are known, can be ferocious, crashing down mountain slopes, overwhelming barricades and dropping tons of rubble on unsuspecting communities during heavy rains.

The San Gabriel and San Bernardino mountains are dotted with catch basins -- government's response to a long and violent history of sudden ***landslides.*** ***The basins are typically engineered to capture the muddy fallout from a 100-year flood -- a heavy rainstorm whose likelihood of happening in any given year is only 1%.***

But in areas damaged by wildfires, the volume and velocity of material washing down can be 10 times greater than usual -- and exceptionally heavy even four to five years after a blaze.

As a result, many basins in ***fire****-ravaged San Bernardino County could now be strained by a major storm, putting thousands of homes, schools and other buildings in harm's way, according to county flood control officials and other hydrologists.*

"Most of these basins, if they get hit within a year or two of a good ***fire,*** *they will not be big enough," said Pat Mead, an assistant public works director for San Bernardino County.*

"In a normal ***fire*** *year, we get maybe one or two canyons with watersheds in them burning. By the looks of things, these* ***fires*** *have burned every watershed in the north part of our county."*

Last week, San Bernardino County officials said they would seek federal money to clear out and expand the basins, warn nearby residents about ***landslide*** *dangers and erect walls of sandbags to minimize the threat.*

Meanwhile, the U.S. Forest Service, which controls many of the wilderness areas hit hardest by the ***fires,*** *has begun assembling a team to determine damage and look for ways to diminish erosion.*

"We don't want to scare people because we don't think a disaster is about to happen, but they need to know that this is not normal," said Ted Golondzinier, another assistant county public works director. "We do think there are areas that are going to be getting some mud flows, and we're trying to figure out where those are most likely to happen."

Fire*-scarred parts of Los Angeles, Ventura and San Diego counties -- including areas not typically prone to* ***landslides*** *-- also may face an increased chance of* ***landslides*** *because of the scope of this year's* ***fires,*** *among the worst in modern California history.*

"Regionally, this is one of the worst potential flooding situations since this became a civilized place," said Douglas Hamilton, a flood control expert with Exponent Inc., an environmental consulting firm. *"Everybody knows the San Gabriel and San Bernardino mountains have problems with debris flows. But even in San Diego, where debris has not been as big of a problem, you could now have a problem because of these* ***fires."***

Debris flows have caused dozens of disasters in Southern California over the last century, including a 20-foot-high avalanche of rocks and mud that swept over La Crescenta and Montrose just after midnight on New Year's Day in 1934, killing 49 people. *A wildfire preceded the disaster. No debris dams were there at the time.*

The dangers of debris flows were highlighted in the 1989 book "The Control of Nature" by John McPhee. ***One passage recounts the horrifying experience of the Genofile family, which nearly perished when a 6-foot wall of muck suddenly struck their home in Shields Canyon above Glendale in 1978 after a particularly intense rain****.*

"The house became buried to the eaves. Boulders sat on the roof. Thirteen automobiles were packed around the building, including five in the pool. A din of rock kept banging against them. The stuck horn of a buried car was blaring," McPhee wrote. "The family in the darkness in their fixed tableaux watched one another by the light of a directional signal, endlessly blinking. The house had filled up in six minutes, and the mud stopped rising near the children's chins."

If wildfires precede heavy rains, the threat of debris flows is exponentially greater, experts say. The fires consume the vegetation that coats hillsides and binds soils together, greatly exposing the areas to erosion. That erosion can deposit huge amounts of sediment downstream from burned areas during rainstorms in a matter of minutes.

"Wildfires remove the canopy that intercepts rainfall, the leaves and needles that are on the ground. And once you've removed that, the water is just going to run downhill, taking a lot of other things with it," said Susan H. Cannon, a researcher with the U.S. Geological Survey's landslide hazards program, which has been studying the link between fire and debris flows for years.

Furthermore, in chaparral-coated Southern California, burning of the brush has been shown to harden surface soils, making the ground more water repellent than usual. That significantly increases the speed with which rainfall rushes down slopes, increasing its destructive power.

"It's an amazing amount of water that can come out of those mountains when it rains," said Chris Wills, a supervising geologist with the California Geological Survey, who vividly remembers his father taking him to see raging mountain waters that filled the Los Angeles River during floods in 1969.

One potential flashpoint is Deer Creek near Rancho Cucamonga. There, the capacity of a large debris basin below mountains that rise to nearly 9,000 feet was the subject of bitter controversy, long before last week's wildfires. The stadium-sized basin lies in the mouth of a canyon at the foot of the San Gabriel Mountains in an alluvial fan molded over time by thousands of floods. Before the area was developed, the rushing mountain waters that spewed from the canyon during the short but strong seasonal rains traveled along a wide swath of the San Bernardino Valley and into the Santa Ana River.

Now that thousands of people live on the valley floor, the waters are corralled by a network of flood channels, and urbanization has been creeping ever closer to the foot of the mountains. The basin, built in 1983, was augmented by a levee that had long existed in the area, but a developer secured approval several years ago to breach the levee to build more homes above it, despite neighbors' concerns that the debris basin alone could not withstand the torrent of muck the creek was capable of discharging.

John Cassidy, an engineering expert working for nearby Ontario International Airport, and Hamilton, of Exponent, who was hired by a citizens group, concluded that the basin, built by the U.S. Army Corps of Engineers, was too small to handle a 100-year flood.

"As constructed, the Army Corps' debris basin would hold only a fraction of the debris that would come out of the watershed during a 100-year flood," Cassidy, a former engineer for Bechtel Corp., said in a deposition. "Required storage would be deficient by 500 acre-feet or more. Five hundred acre-feet would be equivalent ... to some 20,000 truckloads of debris."

Despite the experts' criticisms, the Corps of Engineers has stood by the Deer Creek basin, and public elementary and high schools have since been built below it.

Joseph Evelyn, the supervisory hydraulic engineer for the corps' Southern California office, said the basin had been built to withstand the largest debris flows the corps expects, and took into account that the flows could be made much worse by ***fires.***

But last week, he stopped short of saying it could withstand anything rainwater could wash down. The reality of such structures, he said, is that they are built to reasonably minimize the risk of damage, within economic and even aesthetic constraints.

"It can happen, and has happened," he said when asked if similar debris basins have been known to fail. "But the degree of damage has been within acceptable tolerance. We haven't had an outcry from people asking for fewer teachers and police officers to build bigger debris basins.

"If you are going to assume the worst -- a huge storm situation after a huge fire -- you would have to build huge structures that would cost a