

The following document was submitted “for the record” to the Intermodal Container Transfer Facility (ICTF) Joint Powers Authority (JPA) during the Notice of Preparation/Initial Study (NOP/IS) comment period for the ICTF Modernization and Expansion Project.

The document was submitted by:

Andrea M. Hricko
Assoc Prof Prev Med
Keck School of Med &
Director, Community Outreach and Education
Southern CA Env Health Sciences Ctr
1540 Alcazar Street CHP 236
L.A. CA 90033
323-442-3077

----- End Page -----

WHAT EXACTLY IS IN DIESEL EXHAUST?

- ▶ Diesel exhaust generates diesel exhaust particulate (DEP). DEP is emitted by trucks, school buses, older cars and off-road construction and industrial equipment with engines running on diesel fuel.^{1,2}
- ▶ DEP is a mixture of hundreds of compounds, some of which are gases while others form parts of tiny particles suspended in the air called particulate matter.
- ▶ Diesel exhaust also contributes to the formation of ozone.

WHY SHOULD WE BE CONCERNED ABOUT DIESEL EXHAUST AND HOW IS IT LINKED TO ASTHMA?

The health risks of diesel exhaust are recognized by the State of California.

- ▶ California has formally recognized diesel exhaust particulate (DEP) as a toxic air contaminant which is subject to regulation to lessen emissions and reduce human exposure.
- ▶ In 2001, the Office of Environmental Health Hazard Assessment, under the “Children’s Environmental Health Protection Act” of 1999 (SB 25, M. Escutia), determined one of the “top 5” outdoor air pollutants of concern to children’s health is diesel exhaust particulate.³

Many of the compounds in diesel exhaust are known to cause cancer and are increasingly implicated in asthma as well.^{2,4,8} Studies of diesel exhaust have uncovered a variety of disturbing biological effects directly related to asthma:

- ▶ Exposure to DEP can disrupt the regulation of the immune system, which increases a sensitive person’s risk of having allergic reactions to other things in their environment.⁹
- ▶ Laboratory animals and human volunteers exposed to DEP developed asthma-like inflammation in their air passages.⁹
- ▶ Particulates and ozone from traffic causes cellular damage directly to the lung lining, as well as through inflammation.¹⁰⁻¹¹
- ▶ Children are highly vulnerable to the health risks from diesel exposure. It is well known that children raised in heavily polluted areas face the prospect of reduced lung capacity and prematurely aged lungs.
- ▶ Fine particulates can penetrate children’s narrow airways and lodge deep within the lung, where they are more likely to be retained and absorbed.
- ▶ Children also have higher respiration rates than adults, which can increase their exposure to air pollutants per unit of body weight.

THE FOLLOWING RESEARCH DEMONSTRATES THE IMPACT ON OUR CHILDREN:

- ▶ A study of about 6,000 low-income asthmatic children in San Diego found that asthmatic children living close to high-traffic areas made more doctor visits than those who lived further from traffic. Children living near high traffic areas (nearest freeway or major road) were more likely to have made two or more doctor visits for asthma than those who did not live near high density traffic areas.¹²
- ▶ Another study found that doctor-diagnosed asthma was more prevalent among children living within 100 meters (125 feet) of a freeway. The study also found that children living and attending schools closer to freeways and areas of high truck traffic had more chronic respiratory symptoms (coughing and wheezing) and doctor-diagnosed asthma than those who did not.¹³ In California in 2000, 173 K-12 public schools, with an enrollment over 150,000, were located within 500 feet of high-traffic roadways (>50000 vehicles per day).¹⁴
- ▶ A study done in Atlanta, Georgia, during the 1996 Summer Olympic Games found reduced traffic in the downtown area, due to altered traffic patterns and reduced traffic



“**T**here is a family [where] all three of them have asthma and they feel like they’re prisoners in their own home. The grandmother and two grandsons have asthma and they’re literally four houses from the 710 freeway and two houses away from the train yards. To see two young boys who are not able to go outside and play and engage in sports because they will have an asthma attack that will hospitalize them [is sad]. It’s affecting their schoolwork, their grades, and their existence. Their asthma is a major problem.”

ANGELO LOGAN
East Yard Communities for Environmental Justice

density, reduced asthma hospitalizations. Children reported fewer recorded doctor visits and hospitalizations for asthma during the games compared to four weeks before and after the Olympic Games.¹⁵

WHAT CAN WE DO TO CLEAN UP DIESEL ENGINES AND REDUCE POTENTIAL EXPOSURES TO TRAFFIC-RELATED EMISSIONS IN OUR COMMUNITIES?

CAFA coalitions and Regional Centers are working to promote interventions and policies to improve the lives of children with asthma. These efforts are targeted to the needs of their communities. Local coalition membership includes parents, health care providers, school personnel, environmental justice organizations, tenant organizations, local residents and others concerned about asthma.

A few examples of local CAFA policy and program efforts include:

- ▶ Fighting the expansion of a freeway that would increase local air pollution.
- ▶ Raising awareness and taking action to reduce local sources of outdoor air pollution.
- ▶ Reducing children's exposure to hazardous diesel pollution by working with school districts, school boards, officials, associations and other groups to develop and implement policies regarding school bus idling.¹⁶

For helpful resources and information on how you can take action in your community, go to CAFA's website at <http://www.calasthma.org>.

REFERENCES

1. Pandya RJ, Solomon G, Kinner A, Balmes JR. 2002. Diesel exhaust and asthma: hypotheses and molecular mechanisms of action. *Environ Health Perspect*, 110 (Suppl 1): 103-112.
2. Weir E. 2002. Diesel exhaust, school buses and children's health. *CMAJ*, 167 (5): 505.
3. Office of Environmental Health Hazard Assessment, California Environmental Protection Agency and American Lung Association. "Air Pollution and Children's Health" fact sheet. Internet, http://www.oehha.ca.gov/public_info/facts/airkids.html, accessed 3/18/04 (last updated 11/26/03).
4. Kagawa J. 2002. Health effects of diesel exhaust emissions—a mixture of air pollutants of worldwide concern. *Toxicology*, 181-82: 349-353.
5. Nicolai T. 2002. Pollution, environmental factors and childhood respiratory allergic disease. *Toxicology*, 181-82: 317-321.
6. Yang KD. 2000. Childhood asthma: aspects of global environment, genetics and management. *Changcheng Yi Xue Za Zhi*, 23 (11): 641-61. [Abstract, in English, only]
7. Nicolai T. 1999. Environmental air pollution and lung disease in children. *Monaldi Arch Chest Dis*, 54 (6): 475-478.
8. Eggleston PA, Buckley TJ, Breyse PN, Wills-Karp M, Kleeberger SR, Jaakkola JJ. 1999. The environment and asthma in U.S. inner cities. *Environ Health Perspect*, 107 (Suppl 3): 439-450.
9. Ruzsna C, Devalia JL, Davies RJ. 1994. The impact of pollution on allergic disease. *Allergy*, 49 (18 Suppl): 21-27.
10. Koren HS. 1995. Associations between criteria air pollutants and asthma. *Environ Health Perspect*, 103 (Suppl 6): 235-242.
11. Balmes JR. 1993. The role of ozone exposure in the epidemiology of asthma. *Environ Health Perspect*, 101 (Suppl 4): 219-224.
12. English P, Neutra R, Scaif R, Sullivan M, Waller L, Zhu L. 1999. Examining associations between childhood asthma and traffic flow using a geographic information system. *Environ Health Perspect*, 107 (9): 761-7.
13. van Vliet P, Knape M, de Hartog J, Janssen N, Harssema H, Brunekreef B. 1997. Motor vehicle exhaust and chronic respiratory symptoms in children living near freeways. *Environ Res*, 74 (2): 122-132.
14. Green RS, Smorodinsky S, Kim JJ, McLaughlin R, Ostro B. 2004. Proximity of California Public Schools to Busy Roads. *Environ Health Perspect*, 112 (1): 61-66.
15. Friedman MS, Powell KE, Hutwagner L, Graham LM, Teague WG. 2001. Impact of changes in transportation and commuting behaviors during the 1996 Summer Olympic Games in Atlanta on air quality and childhood asthma. *JAMA*, 285 (7): 897-905.
16. California Air Resources Board (UCLA and UC-Riverside). 2003. Children's School Bus Exposure Study. Accessed on Internet October 17, 2003 (last updated October 16, 2003), <http://www.arb.ca.gov/research/schoolbus/schoolbus.htm>