

Health Effects of Diesel Exhaust: Understanding the Risks

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01/23/2019

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- ▶ **Education & Training**
 - ▶ MD 2003 – Rush Medical College
 - ▶ Pediatrics 2006 – University of Chicago Hospitals
 - ▶ Allergy/Immunology 2008 – Rush University Medical Center & John H. Stroger Hospital of Cook County
- ▶ **Credentials**
 - ▶ Double Board-Certified in Pediatrics and Adult & Pediatric Allergy & Immunology
 - ▶ Fellow of the American Academy of Allergy, Asthma and Immunology
 - ▶ Fellow of the Illinois Society of Allergy, Asthma and Immunology
- ▶ **Medical Director**
 - ▶ Kaneland Allergy & Asthma Center- North Aurora, IL

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Exhibit I

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Why Do I Care?

- ▶ Professional Responsibility
 - ▶ Physician providing care to adults and children of the Kaneland Community, including the residents of Sugar Grove and Elburn
 - ▶ Duty to safeguard the health of the local community
 - ▶ Member of the Advocacy Council of the American Academy of Allergy, Asthma, and Immunology
 - ▶ Duty to advocate for policies that prioritize the welfare of ALL patients with allergies, asthma, and/or immune deficiencies
- ▶ Personal
 - ▶ Resident and taxpayer in Sugar Grove
 - ▶ Homeowner in the Hannaford Farm subdivision
 - ▶ Parent of children in the Kaneland School District
 - ▶ Parent of children with asthma and allergies
 - ▶ Patient with asthma and allergies

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Crossroads Project Proposal

Table 1: The Development to Location

Location	Area	Year	Population	Employment	Population Density	Employment Density
Site Location	100 Acres	2015	10,000	1,000	100	10
Neighboring Area	200 Acres	2015	20,000	2,000	100	10
Regional Area	1,000 Acres	2015	100,000	10,000	100	10

Table 2: Estimated Traffic Projections

Phase	Year	Peak Hour	Peak Hour Volume	Peak Hour Delay
Phase 1	2015	AM	100	10
	2015	PM	100	10
Phase 2	2020	AM	200	20
	2020	PM	200	20

The information generated from traffic analysis is based on assumptions made by the applicant and the general public. It is not intended to be used as a basis for any legal action or as a basis for any other purpose. The applicant is responsible for the accuracy of the information provided. The estimated traffic projections are based on the information provided by the applicant and the general public. The estimated traffic projections are based on the information provided by the applicant and the general public. The estimated traffic projections are based on the information provided by the applicant and the general public.

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Why We Should Question these Estimates

- ▶ Crown is not an experienced logistics / warehouse / distribution facility developer, so we cannot rely blindly on their estimates of 1,840 truck trips/~4M SF/day
- ▶ Instead, we can look to existing facilities throughout the country
 - ▶ New York State (std development profile): 350 truck trips/500K SF/day
 - ▶ Redlands, California (AMB Corp): 1000 truck trips/1.3M SF/day
 - ▶ Pueblo, Colorado (Wal-Mart): 700 truck trips/880K SF/day
 - ▶ Delaware: 1000 truck trips/1.2M SF
 - ▶ Connecticut: 1000 truck trips/1.2M SF
- ▶ Average of the above: ~400 truck trips/500K SF/day → >3240 truck trips/day for **Phase 1 alone**.
 - ▶ **That's a 76% underestimation on Crown's part.**

Bluffstone, R and Ouderkirk, B. Warehouses, Trucks, and PM2.5: Human Health and Logistics Industry Growth in the Eastern Inland Empire.

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Air Pollution from Diesel Exhaust



- ▶ Diesel-powered vehicles and equipment account for the following emissions from US transportation sources
 - ▶ ~50% of NOx
 - ▶ >66% of particulate matter

<https://www.ucsus.org/clean-vehicles/vehicles-air-pollution-and-human-health/diesel-engines#.XEjahFxKiUI>

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Dangers of Diesel Exhaust

- ▶ Classified as a human carcinogen by the World Health Organization
- ▶ Composed of a combination of gases, particulate matter, and over 40 toxic compounds
 - ▶ NOx – Nitrogen Oxides
 - ▶ DPM – Diesel Particulate Matter
 - ▶ Toxic Compounds
 - ▶ Ammonium
 - ▶ Carcinogenic compounds
 - ▶ Organic Compounds
 - ▶ Nitrates
 - ▶ Sulfates
 - ▶ Toxic heavy metals

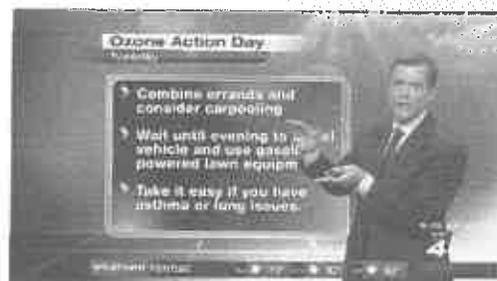


<https://www.epa.gov/haps/health-effects-notebook-hazardous-air-pollutants>

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NOx : Nitrogen Oxides

- ▶ Nitrogen oxides from diesel exhaust react with sunlight and oxygen and contribute to ground level ozone, photochemical smog, and acid rain
- ▶ Ground level ozone has been associated with increased hospital admissions for asthma
 - ▶ Highest risk to children and the elderly



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DPM: Diesel Particulate Matter – Size Matters!

- ▶ DPM is predominantly composed of fine and ultrafine particles
 - ▶ These small particles can reach deep into the lungs and deliver toxic compounds to the body's tissues
- ▶ Fine particulate matter: PM_{2.5} (< 2.5 microns in diameter)
 - ▶ Has several days of "float time" under dry conditions
- ▶ Ultrafine particulate matter (<0.1 microns in diameter)
 - ▶ 80-95% of DPM is ultrafine
 - ▶ 20% of DPM is <0.05 microns



<https://www.ucsusa.org/clean-vehicles/vehicles-air-pollution-and-human-health/diesel-engines#.XEjahFxFkIUI>

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DPM: Risks of Short-Term Exposure

- ▶ Irritation
 - ▶ Rhinitis
 - ▶ Cough, wheeze
- ▶ Inflammation
 - ▶ Inflamed lungs in the young and previously healthy
 - ▶ Increased heart attacks
 - ▶ Increased asthma attacks (ER, hospitalizations)
- ▶ Death
 - ▶ Respiratory and Cardiovascular causes, including stroke



Association of Short-Term Exposure to Air Pollution with Mortality in Older Adults
Qian, D et al. JAMA. 2017;318(24):2446-2456. doi: 10.1001/jama2017.17923

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DPM: Risks of Long-Term Exposure



- ▶ Babies
 - ▶ Infertility
 - ▶ Low birth weight
 - ▶ Infant mortality
- ▶ Children
 - ▶ Slowed lung function growth in children and teens
 - ▶ Increased development of asthma
 - ▶ Increase asthma hospitalizations
- ▶ Adults
 - ▶ Cancer (particularly lung cancer)
 - ▶ Cardiovascular disease
 - ▶ >155,000 U.S. deaths in 2015 related to pollution

Here's How Many People Die for Pollution Around the World. <http://time.com/4989641/water-air-pollution-deaths/>
 Environ Int. 2018 Jun;115:239-246. doi: 10.1016/j.envint.2018.03.029. Epub 2018 Mar 30.

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Leading Causes of Death in Kane County

Leading Causes of Death

Distribution of Deaths by Cause

Together, cancers and cardiovascular disease (heart disease and stroke) accounted for half of all deaths in Kane County in 2016.

Leading Causes of Death
(Kane County, 2016)



Combination of cancer, heart disease, and lung disease accounts for ~50% of all deaths in Kane County

http://www.countyofkane.org/Documents/Quality%20of%20Kane/Community_Health_Needs_Assessment.PDF

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What Does This Mean for Our Health?

- ▶ The associations between increasing concentrations of NO_x and PM and increased morbidity and mortality are NOT just coincidental
- ▶ Recent studies reveal CAUSALITY of even low levels of air pollution on death rates
- ▶ There can be NO CLAIMS of DENIABILITY when our community starts getting sick and dying at increased rates. We all have been put on notice.

Schwartz, J., Bind, M. A., & Koutrakis, P. (2016). Estimating Causal Effects of Local Air Pollution on Daily Deaths: Effect of Low Levels. *Environmental health perspectives*, 125(1), 23-29. Published online 2016 May 20. doi: [10.1289/EHP232](https://doi.org/10.1289/EHP232)

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Given what we know... Why here? Why now?

- ▶ "Warehousing developers search for locations with low land rent, low-wage labor pool, weak political power, and favorable public policies. Economic, sociopolitical and institutional factors are equally important in the dynamics. When local authorities are indifferent about warehousing development, minority residents may not be able to resist this spatial inequity, or unequal spatial distribution of warehouses."

<https://blog.ucsusa.org/science-blogger/warehouses-as-an-environmental-justice-issue>

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My Recommendation

- ▶ Planning Commission:
 - ▶ TAKE YOUR TIME.
 - ▶ BE ADVOCATES FOR THE WELL-BEING OF OUR COMMUNITY.
 - ▶ BE AWARE OF POTENTIAL FOR FUTURE LITIGATION.
 - ▶ DON'T BE AFRAID TO SAY "NO".
- ▶ Crown:
 - ▶ Please go back to the drawing board and come back with a proposal that honors the health and vitality of our community
 - ▶ We are not opposed to development, but any development should above all, DO NO HARM

Acknowledgments

The taking of an acknowledgment consists of positively identifying the signer of a document. The signer need not sign in the notary's presence but must personally appear before the notary and state that the signature on the document is his or hers. Acknowledgments may be taken in an individual capacity or in a representative capacity (as an authorized representative of another -- for example, as officer of a corporation for and on behalf of the corporation or as an attorney in fact for another person). These short form certificates are sufficient to meet the requirements of the law.

Acknowledgment (in an individual capacity):

State of Illinois
County of KANE.

This instrument was acknowledged before me on 01-23-19
(date) by PAUL J. FRESKE (name of person).

(seal)


signature of notary public

