

March 7, 2024

Reference Number: DEP-99

Comment in Opposition to Proposed Rule-Making by the New York City Department of Environmental Protection (“DEP”)

Dear Commissioner Aggarwala:

As a pediatrician who has treated countless children with asthma in New York City, I write to strongly oppose DEP's proposed repeal of the present, well-working rule defining of “adjacent” to a school and its replacement with an ill-conceived, narrower rule that will be much harder to administer and result in substantial harm to public health and the environment.¹

Air pollution kills. It makes people sicker, and it reduces life expectancy. The new proposed rule will worsen air pollution in New York City. That is because, as I have illustrated in Attachment A, DEP’s proposal will drastically shrink the area of school blocks protected by the one-minute rule. It will also compromise the protections for parks—where New Yorkers seek to find a refuge from noise and pollution—that have not even gone into effect yet.

DEP’s new rule will thus directly result in less enforcement of anti-idling laws in the one area where enforcement is most needed: in school zones, where the most vulnerable of New Yorkers are by definition to be found. This rule will impact children’s lives, as well as their life expectancy. It will cause not just asthma and respiratory illnesses, but also cause them to be exposed to more carcinogenic substances. It will cause brain maturation delays, learning issues, and mental health issues, and will significantly increase their lifetime risk of cardiovascular disease, including strokes and heart attacks. This reckless rule may further increase the risk of developing chronic diseases, including diabetes and obesity.

DEP must consider the available science in any analysis of the potential effects of a modification of any existing rule. **DEP should not adopt any rule that increases air pollution and results in considerable adverse health effects.** This new rule is especially awful because, while it is bad for all New Yorkers, the greatest public health impact resulting from this new rule would be borne by children. **As a New Yorker, a doctor, a scientist, and a father, I call on DEP to address each of the scientific and public health concerns raised in this letter and identified in Section II below with particularity before it implements a rule with a new definition of “adjacent.”**

I. DEP Fails to Address Whatsoever the New Harms and Costs of Its Proposed Rule.

DEP’s proposed rule does not include any analysis whatsoever of the health effects of its implementation. The DEP likewise has provided no analysis of the costs the harm will impose on the City’s budget and already-strained healthcare system, to say nothing of costs borne by other parties. There is substantial evidence, however, that this rule will result in significant harm to children, who are among the most vulnerable affected by air pollution, but it would also impact

¹ This letter and documentation supplements an earlier comment I submitted via DEP’s webform.

many other New Yorkers, including the elderly, the immunocompromised, and those with chronic health conditions, such as COPD, asthma, cardiac disease, and underlying lung cancer.

Tailpipe emissions are rife with particulate matter smaller than 2.5 microns in diameter, known as “PM_{2.5}.” Diesel and gasoline exhaust affects the human body not only through PM_{2.5} particulates but also via hydrocarbons, carbon dioxide, carbon monoxide, soot, various sulfur and nitrogen compounds, and manganese.

Of additional concern is that historically, economically marginalized communities and communities of color are among the worst affected by vehicular pollution. An analysis from the Union of Concerned Scientists reports that minority communities in New York inequitably bear the burden of the highest exposure to these toxic transportation emissions. That analysis finds Asian Americans, people of Latin or Hispanic descent, and African American New Yorkers are exposed to higher levels of PM_{2.5} pollution from cars, trucks, and buses than white New Yorkers. Incredibly, Asian American residents are exposed to twice as much PM_{2.5} pollution as white residents. New Yorkers of Latin or Hispanic descent are exposed to 81 percent more vehicle pollution than white residents, and African American residents to 72 percent more. *See* <https://www.ucsusa.org/sites/default/files/attach/2019/06/Inequitable-Exposure-to-Vehicle-Pollution-NY.pdf>.

Based on the scientific articles I cite below, DEP’s proposed rule will unquestionably result in an increased incidence of asthma, other respiratory illnesses, cancer, stroke, heart disease, mental health issues, premature death, developmental delays, and learning disabilities in children, together with neurological harm, including Parkinson’s disease and various forms of dementia in adults. These adverse effects will in turn result in an increased frequency of emergency visits, surgeries, prescription drug use, and other significant costs, such as those associated with caring for those with dementia and other chronic conditions.

II. DEP Must Address the Following Specific Scientific and Public Health Issues in Its Analysis of the Proposed Rule.

DEP has not undertaken, let alone publicized any efforts to examine the health and fiscal impacts of its new rule. At a minimum, DEP must consider the following scientific studies and governmental reports to determine whether this rule constitutes an overall improvement over the existing rule. A thorough benefit/risk assessment needs to be conducted of both the expected health impact of the proposed rule for New Yorkers, particularly for children, as well as the expected financial and economic impact for New York City. Unless such benefit/risk analysis favors the new rule over the current, well-working one, no changes to the present rule are warranted.

- A. **Decades of research have firmly established that breathing particle pollution day in and day out can be deadly.** PM_{2.5} is especially dangerous. By way of comparison, a human hair is about 100 microns in diameter, so roughly 40 fine particles could be placed on its width. In fact, the smaller particles are so small that New York State's Department of Health observes several thousand of them could fit on the period at the end of this sentence. https://www.health.ny.gov/environmental/indoors/air/pmq_a.htm.

PM_{2.5} is the largest environmental health risk factor in the United States and is responsible for a whopping **63 percent of deaths from environmental causes**. (University of Washington Institute for Health Metrics and Evaluation, GBD Compare Data Visualization (Institute for Health Metrics and Evaluation, University of Washington, Seattle). Available at <https://vizhub.healthdata.org/gbd-compare/>.) These particles are small enough to penetrate deep into the lungs, and the smallest can even enter the bloodstream.

According to the American Lung Association's "State of the Air 2023" report, "numerous seminal studies that looked at different groups of people living in different parts of the country consistently showed a **clear relationship between long-term exposure to particulate matter and mortality**." (U.S. EPA. Integrated Science Assessment for Particulate Matter. December 2019 EPA/600/R-19/188. Section 11.2.)

Recent research using publicly available data on a cohort of more than a million adults in the U.S. reconfirmed that **long-term exposure to PM_{2.5} was associated with elevated risks of early death**. The increased risk was primarily associated with death from cardiovascular and respiratory causes, including heart disease, stroke, influenza, and pneumonia. Researchers also found a similar association between exposure to fine particle pollution and an increased risk of death from lung cancer among never-smokers. (Pope CA, Lefler JS, Ezzati M, Higbee JD, Marshall JD, Kim S, Bechle M, Gilliat KS, Vernon SE, Robinson AL, Burnett RT. Mortality risk and fine particulate pollution in a large, representative cohort of U.S. Adults. *Environ Health Perspect*. 2019; 127(7):077007-1-077007-9.)

Another study of 68.5 million Medicare-enrolled adults in the United States between 2000 and 2016 found a **6–8% increase in risk of all-cause mortality for every 10µg/m³ increase in PM_{2.5}**. (Dominici F, Zanobetti A, Schwartz J, Braun D, Sabath B, Wu X. Assessing Adverse Health Effects of Long-Term Exposure to Low Levels of Ambient Air Pollution: Implementation of Causal Inference Methods. Health Effects Institute. 2022; Research Report 211.)

Research has also linked year-round exposure to particle pollution to a wide array of serious health effects at every stage of life, from conception through old age. Among pregnant people, fetuses and children, long-term particle pollution exposure is linked to:

- **Increased risk of preterm birth and low birth weight** (Bekkar B Pacheco S, Basu R, DeNicola N_ Association of air pollution and heat exposure with preterm birth, low birth weight and stillbirth in the U.S.: A systemic review. *JAMA Network Open*. 2020; 3(6):e208243.)
- **Increased fetal and infant mortality** (Bekkar B et al. 2020.)
- **Impaired neurological development and cognition** (Ni Y, Loftus CT, Szpiro AA, Young MT, Hazlehurst MF, Murphy LE, Tylavsky FA, Mason WA, LeWinn KZ, Sathyanarayana S, Barrett ES, Bush NR, Karr CJ. Associations of pre- and

postnatal air pollution exposures with child behavioral problems and cognitive performance: A U.S. multi-cohort study. *Environ Health Perspect.* 2022.)

- **Reduced lung development and impaired lung function in children** (U.S. EPA. 2019, Section 5.2.2.2.1.)
- **Higher likelihood of children developing asthma** (U.S. EPA. 2019, Section 5.2.3.1.)

In adults, long-term particle pollution exposure is linked to:

- **Increased risk from existing cardiovascular and respiratory disease**, including a worsening of heart disease, atherosclerosis, and COPD (U.S. EPA. 2019, Sections 6.2.2 and 5.2.5.)
- **Higher likelihood of developing diabetes and subsequent complications** (Bowe B, Xie Y, Li T, Yan Y, Xian H, Al-Aly Z. The 2016 global and national burden of diabetes mellitus attributable to PM_{2.5} air pollution. *Lancet Planet Health.* 2018; 2:e301-12; Wu Y, Zhang S, Qian SE, Cai M, Li H, Wang C, Zou H, Chen H, Vaughn MG, McMillin SE and Lin H. Ambient air pollution associated with incidence and dynamic progression of type 2 diabetes: a trajectory analysis of a population-based cohort. *BMC Med.* 2022; 20:375.)
- **Higher likelihood of getting lung cancer and of dying from it** (U.S. EPA, 2019, Section 10.2.5.1.)
- **Impaired cognitive functioning and an increased risk of Parkinson's disease, Alzheimer's disease, and other dementias.** (Kilian J and Kitazawa M. The emerging risk of exposure to air pollution on cognitive decline and Alzheimer's disease — evidence from epidemiological and animal studies. *Biomed J.* 2018; 41:141-162; Shi L, Wu X, Danesh Yazdi M, Braun D, Abu Awad Y, Wei Y, Liu P, Di Q, Wand Y, Schwartz J, Dominici F, Kioumourtzoglou M-A, Zanobetti A. Long-term effects of PM_{2.5} on neurological disorders in the American Medicare population: a longitudinal cohort study. *Lancet Planet Health.* 2020; 4:e557-65.)

But the good news is, cleaning up air pollution makes a difference, and strong anti-idling policies have shown to make an especially significant difference near schools (Mendoza DL, Benney TM, Bares R, Fasoli B, Anderson C, Gonzales SA, Crosman ET, Bayles M, Forrest RT, Contreras JR, et al. Air Quality and Behavioral Impacts of Anti-Idling Campaigns in School Drop-Off Zones. *Atmosphere.* 2022; 13(5):706.). Rigorous scientific research has shown a consistent relationship between reducing air pollution concentrations and improving respiratory health in children and adults in communities that have reduced their levels of year-round particle pollution. (U.S. EPA. 2019, Section 5.2.11.)

- B. **According to the U.S. Department of Energy, school zones are especially vulnerable due to the impacts of exhaust on children's lungs, which continue to develop through early adulthood.** Exposure to exhaust and smoke impacts lung growth and may contribute to many pulmonary disorders, including asthma. Children are more at risk because of their faster rates of respiration and the amount of time they spend playing outdoors.

<https://www.energy.gov/energysaver/articles/reducing-vehicle-idling-time-school-helps-kids-and-parents-breathe-easier>

- C. **Diesel fumes emitted by school buses are especially harmful to school children, as this study showed.** Children are frequently already exposed to toxic fumes as a result of riding in a school bus. This may be compounded by buses being lined up in front of schools, thus the authors state: “Queued idling buses had the highest levels of particulates and black carbon measured. Idling buses tend to accumulate diesel exhaust which may be retained during the ride, depending upon bus ventilation rates. Particulate and carbon concentrations rise rapidly once idling begins.”

<https://www.ehhi.org/reports/diesel/dieselintro.pdf>

- D. **ANYONE who lives where particle pollution levels are high is at risk from air pollution, but some especially vulnerable groups face an even greater risk.** This risk is based on their underlying health and other characteristics. Research has shown that the groups at the greatest risk from particle pollution include:

- Individuals who are pregnant and fetuses (Bekkar B et al. 2020.)
- Infants, children and older people (> 65 years of age) (U.S. EPA. 2019, Section 12.5.1.1.)
- People with lung disease, especially asthma, but also people with COPD (U.S. EPA. 2019, Section 12.3.5.)
- People with cardiovascular disease (U.S. EPA. 2019, Section 12.3.1.)
- People with lung cancer (U.S. EPA. 2019, Section 10.2.5.1.)
- People of color (U.S. EPA. 2019, Section 12.5.4.)
- Current or former smokers (U.S. EPA. 2019, Section 12.6.1.)
- People with low incomes (U.S. EPA. 2019, Section 12.5.3.)
- People who are obese or have diabetes (U.S. EPA. 2019, Section 12.3.3.)

- E. **For idling next to schools, EPA recommends a guideline stricter than the current one-minute idling limit:** “When school bus drivers arrive at loading or unloading areas to drop off or pick up passengers, they should turn off their buses as soon as possible to eliminate idling time and reduce harmful emissions. The school bus should not be restarted until it is ready to depart.” That is because idlers’ diesel exhaust fumes pose huge dangers for children, highlighting asthma, allergies, and lung cancer.

<https://www.epa.gov/sites/default/files/2015-04/documents/dieselexhaustschoolbusidling.pdf>

- F. **According to the Department of Transportation, idling engines emit particulate matter that, when inhaled, migrates throughout the body, and causes heart attacks, bronchitis, asthma, cancer, strokes, and neurological problems, among other health concerns.** Diesel particulate matter is of particular concern because long-term exposure is likely to cause lung cancer. Levels of traffic-related air pollution are higher near major roadways that have high traffic volume.

<https://www.transportation.gov/mission/health/cleaner-air>

- G. **The CDC warns that vehicle emissions can affect fetal and childhood development, worsen adults' health, and accelerate various diseases associated with old age.**
<https://www.cdc.gov/healthyplaces/healthtopics/airpollution.htm>
- H. **People of color living in New York City are exposed to 5% more PM_{2.5} attributable to diesel trucks operating in the city than average, while non-Latino white residents are exposed to 10% less.** These inequities in air pollution exposure contribute to racial disparities in health outcomes
<https://theicct.org/wp-content/uploads/2022/04/true-diesel-trucks-nyc-apr22.pdf>
- I. **Low-income neighborhoods and communities of color in 52 US cities experience 28 percent more nitrogen dioxide pollution than higher-income, majority-white neighborhoods.**
<https://insideclimatenews.org/news/27102021/diesel-pollution-environmental-justice/>
- J. **On average, African American, Latino, and Asian Americans are exposed to more PM_{2.5} pollution from cars, trucks, and buses than white people.** In California, these groups are exposed to PM_{2.5} pollution 43, 39, and 21 percent higher, respectively, than white Californians.
<https://www.ucsusa.org/sites/default/files/attach/2019/02/cv-air-pollution-CA-web.pdf>
- K. **Even at relatively low-levels, current PM_{2.5} exposure across the U.S. may be an important environmental factor influencing patterns of structural brain development in childhood.** <https://doi.org/10.1016/j.envint.2020.10593>
- L. **Traffic-related air pollution (TRAP) is linked to changes of child behavior and neurodevelopment at the age of 3-9 years, decrease of IQ, increase of Attention Deficit Hyperactivity Disorder (ADHD), and decrease of brain-derived neurotrophic factor (BDNF), reduction of left hemisphere white matter.** The effect on neurobehavioral development in children, measured as PM_{2.5}, PM₁₀, elemental carbon (EC), black smoke (BC), NO₂, NO_x, were studied in the USA, Spain, Italy, and South Korea. Increased concentrations of PM_{2.5} affected adults' cognition (episodic memory), increased major depressive disorders. Increased concentrations of NO₂ were also associated with dementia, NO_x with Parkinson's disease. Increased concentrations of polycyclic aromatic hydrocarbons, PM_{2.5} and NO₂ in polluted air significantly affect the central nervous system in children and adults and represent a significant risk factor for human health.
<https://pubmed.ncbi.nlm.nih.gov/29298278/>
- M. **PM_{2.5} exposure has been found to aggravate the behavioral abnormalities of Parkinson's disease symptoms in animals through increasing oxidative stress, decreasing autophagy and mitophagy, and inducing mitochondria-mediated neuronal apoptosis.** These findings not only revealed the effects and mechanism of PM_{2.5} exposure on Parkinson's disease but also provided fundamental data that can be exploited to develop environmental safety policies.
<https://pubmed.ncbi.nlm.nih.gov/33823232/>

N. **The particles produced by idling lead to increased risk for death and hospital admission for Alzheimer’s disease.** In this retrospective cohort study examining the effect of exposure to PM_{2.5} on Alzheimer’s disease and other debilitating conditions, the authors found that North Carolina residents aged 65+ with long-term exposures to ambient PM_{2.5} levels exceeding the WHO standard had significantly increased risks of death and hospital admissions for Alzheimer’s disease (AD). The effects for non-AD dementia and Parkinson's disease were less pronounced.
<https://pubmed.ncbi.nlm.nih.gov/34242242/>

O. **Exposure to annual mean PM_{2.5} in the USA is significantly associated with an increased hazard of first hospital admission with Parkinson’s disease and Alzheimer’s disease and related dementias.** For the aging American population, improving air quality to reduce PM_{2.5} concentrations to less than current national standards could yield substantial health benefits by reducing the burden of neurological disorders.
[https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196\(20\)30227-8/fulltext](https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196(20)30227-8/fulltext)

Before implementing a new rule, DEP must address each of these items in its review and consideration. If it cannot justify the increased harm to children, adults, and the elderly, it should not pass any new rule.


III. DEP Must Change Course and Withdraw the Proposed Rule.

As is evident from the above-cited scientific articles, there is broad consensus that vehicle-related air pollution, particularly diesel emissions from school buses and trucks, are harmful to human health and are particularly damaging to children. In this context, it is imperative that NYC DEP provides a solid rationale for modifying the current well-working rule, replacing it with one that makes enforcing anti-idling laws more difficult, harms our health, harms the health of our children, and harms the environment.

In its rule-making, DEP must, at minimum, review this scientific evidence and inform the public on what basis sacrificing the health of the most vulnerable New Yorkers can be justified. This is a hard task. Note that in its 2003 recommendations, the Environmental Protection Agency states that drivers “should turn off their buses as soon as possible to eliminate idling time and reduce harmful emissions.” If there was sufficient evidence in 2003 for the EPA to make such a recommendation, one has to wonder why 21 years later the NYC Department of Environmental Protection proposes a rule modification that would result in an increase of harmful emissions.

In truth, there is no reason why school buses (or trucks) should idle for one minute, let alone 3 minutes in the vicinity of a school. The Council, however, has passed a law banning idling of more than one minute adjacent to any school, and now to any park. To protect our air, DEP must pass a rule that protects children and vulnerable New Yorkers. The proposed rule does the opposite. DEP must abandon this proposed rule and instead expand the existing rule to better protect New York's children.

Sincerely,



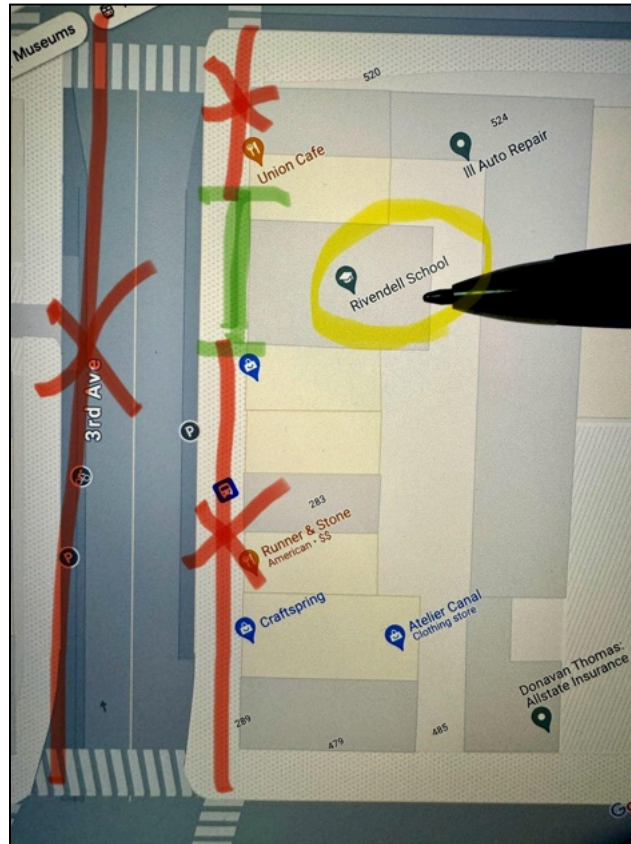
Patrick Schnell, M.D., FAAP.

Attachment A, Illustrating Harm Caused by the New Rule

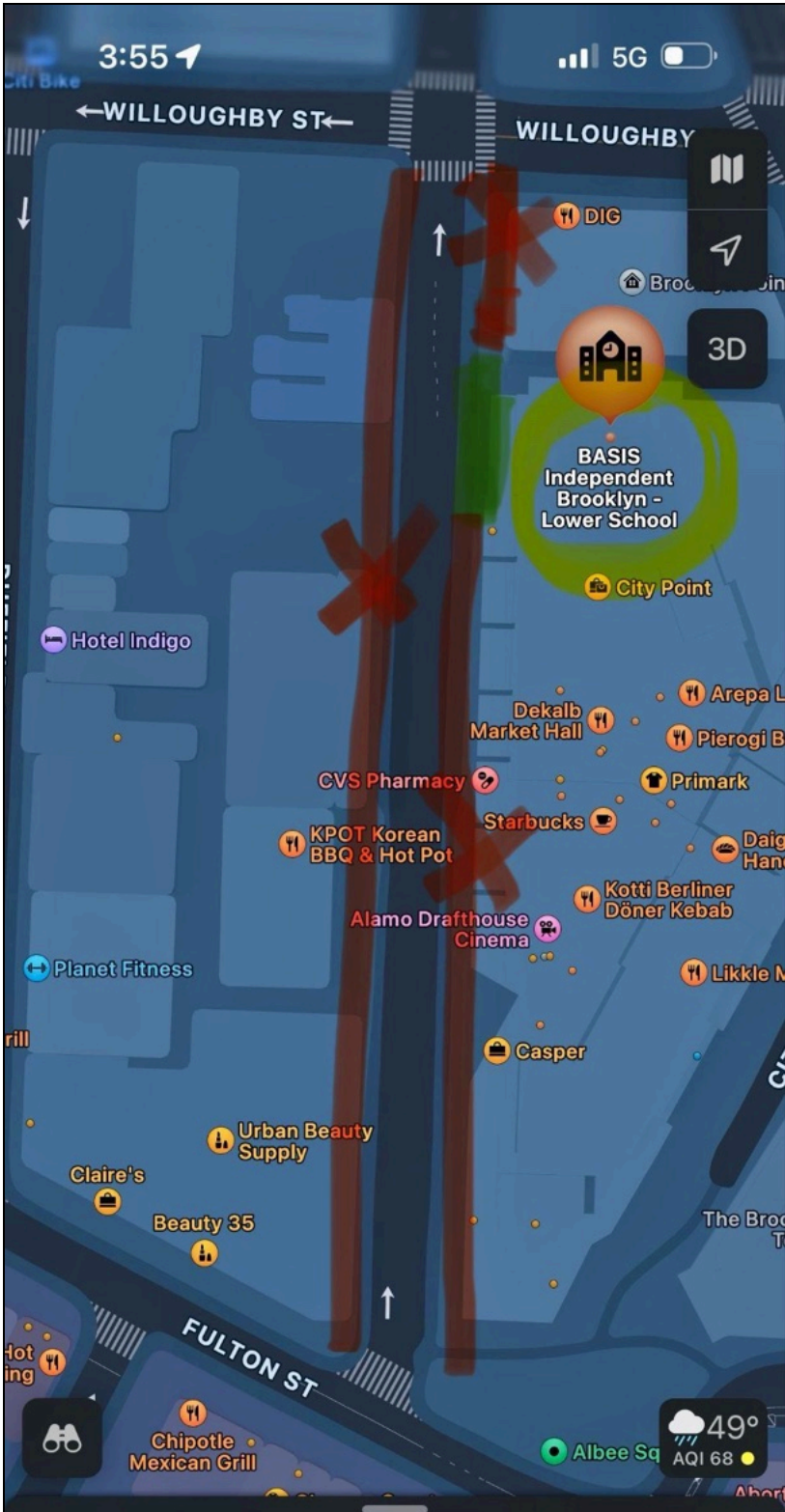
Attachment A

Below are examples of specific schools in Brooklyn where **DEP's new rule would dramatically increase the amount of legal air pollution affecting children**. The areas highlighted in red would no longer be protected by the one-minute rule under DEP's proposal.

Rivendell School



Basis Independent School



Little Brooklyn Pre-K School

