Allergy & Asthma Network •Alliance of Nurses for Healthy Environments
American Lung Association • American Public Health Association
American Thoracic Society • Asthma & Allergy Foundation of America
Children's Environmental Health Network
Health Care Without Harm •National Environmental Health Association
Physicians for Social Responsibility •Trust for America's Health

June 30, 2016

Mr. Nealson Watkins
Air Quality Assessment Division
Office of Air Quality Planning and Standards
U.S. Environmental Protection Agency
Mail Code C304-06
Research Triangle Park, NC 27711

RE: Comments on Proposed Revision to the Near-Road NO_2 Minimum Monitoring Requirements: Docket ID No. EPA-HQ-OAR-2015-0486

Dear Mr. Watkins:

We medical and nursing societies and public health organizations wish to provide comments to the U.S. Environmental Protection Agency on the proposal to scale back minimum requirements for monitoring near-road exposures to nitrogen dioxide. We urge EPA to reconsider this decision and retain the required monitoring for metropolitan areas between 500,000 and 1 million in population that was to be effective in January 2017.

Nitrogen dioxide (NO_2) has long been recognized as a widespread and harmful air pollutant. As EPA concluded in the 2016 *Integrated Science Assessment* (ISA), nitrogen oxides, including NO2, cause a range of harmful effects on the lungs including: increased inflammation of the airways; worsened cough and wheezing; reduced lung function; increased asthma attacks; greater likelihood of emergency department and hospital admissions; and increased susceptibility to respiratory infection, such as influenza. Greater evidence now exists that long term exposure to NO2 likely causes the development of asthma in children. New evidence discussed in the ISA, also links short-term and long term exposure to cardiovascular harm, diabetes, premature death, birth outcomes and cancer.[1]

Children, older adults, and people with asthma or other lung disease and people with cardiovascular disease are at greatest risk. These include millions of people. For example, there are an estimated 24 million people, including 6.3 million children, with asthma in the U.S.[2]

In addition, people who work, live or attend school along major highways also face increased risk, especially those living within 300 feet of a 4-lane or larger highway, railroad or airport.[3] In 2008, EPA cited the most current assessment of that population at 47.8 million people, based on the 2007 American Housing Survey. 60 Fed. Reg. 134. EPA cited the likelihood that "[p]eople living or spending time near or on roads" would face "increased risk for NO2-related health effects" as one of the major findings in this current review of the science in the 2016 ISA.[4]

We supported the proposal for near-road monitoring network in the last review of the national ambient air quality standards for NO_2 and other oxides of nitrogen, but urged its expansion beyond the proposal. As the American Lung Association explained in its September 14, 2009 comments:

This provision is one of the most important elements of the regulatory proposal for NO_2. The significant populations impacted by pollution from highways bolster the need for additional monitoring. The burgeoning system of highways and roads provide economic and mobility benefits that, at the same time, can impose severe impacts on communities. We have already noted EPA's finding that "A considerable fraction of the population resides, works or attends school near major roadways and that these individuals are likely to have increased exposure to NO_2." (74 Fed. Reg. 34419). The estimate of that population has grown since completion of the ISA. The most current (2006) American Housing Survey showed a significant increase in the number of households living with 300 feet of highways, railroads or airports, totaling 15.6% of housing units and impacting almost 50 million people 74 Fed. Reg. 34419.

> Many schools fall into the high-exposure zone near roadways as well. In California, Green et al (2004) report that over two percent of public grade schools sit within 150 meters of high traffic roads. In addition, they found that a disproportionately large percentage of students attending these schools are economically disadvantaged and nonwhite.[5] Kim et al (2004) surveying over 1,000 elementary school students in Northern California found higher rates of asthma and bronchitis symptoms in children attending schools near busy roads and freeways.[6] Many other studies show that children spend a significant amount of time at school, making exposure to pollution at school an important consideration; and that close proximity of schools to a freeway greatly increases risks of acute and chronic respiratory illnesses and many other adverse health impacts.[7] Similarly, living in close proximity to major roadways is widely recognized as significantly elevating cancer risks, mortality, respiratory disease and other adverse health outcomes.[8]

EPA's argument for removing the requirement for these monitors in mid-sized urban areas rests on the preliminary results of very limited monitoring in larger urban areas. The initial monitoring data from the near-road monitors is encouraging, showing lower levels of NOx than had been expected. However, EPA's proposal mistakenly assumes that these data reduce the need for additional monitoring.

Three reasons show why the additional near-road monitoring remains needed.

First, the NO2 NAAQS should be and may be stronger as a result of the ongoing review. EPA compares the preliminary data with compliance for the NO2 national ambient air quality standard adopted in 2010 and finds all monitors in larger urban areas show the standards being met uniformly. However, EPA is currently reviewing the NO2 NAAQS and newer evidence indicates that the standards need to be much more protective. Even in the last review, the Clean Air Scientific Advisory Committee recommended to the Administrator that the evidence supported a one-hour standard as low as 80 ppb.[9] The conclusions in the 2016 ISA support a stronger standard, including multiple longitudinal studies that show that long-term exposure likely causes new onset of asthma in children.[10] Monitoring decisions based on attainment of the old standard will likely deprive millions of people of the protections from a more-protective standard.

Second, the existing network of monitors is too small and too premature to ensure that the information accurately reflects near-road exposures. EPA has required the establishment of monitoring network after abundant research showed the higher levels of pollution near these busy roadways. Unfortunately, the network remains too small to determine if the monitors adequately reflect air quality near these roadways. Two monitors are all that are required in metropolitan areas over 2.5 million in population, while areas with populations from 500,000 to 2.5 million generally only needed one monitor.

According to EPA's May 2016 file on these monitors, most were installed in the summer of 2014 or later.[11] Only two cities—Detroit, MI and Boise, IA—reported having monitors installed in 2012 or earlier; none of the others can provide three complete years of data.

However, even if the preliminary data indicated compliance with the standards, the sparse number leaves open many questions, especially in sites with so many geophysical challenges. For instance, would other locations in the metro area have shown more elevated levels because of different wind or traffic patterns? How would other locations compare with the selected one to show if the results were consistent? Would a different location have shown higher levels because of characteristics that had not been previously considered or given less weight in locating the monitor? Should modeling NO2 be required to supplement these limited monitors, similar to the recognized need for modeling sulfur dioxide emissions from power plants? With only one or two sites per city, questions of siting in a city are impossible to answer.

EPA's guidance for selecting the location for these monitors[12] recognized that multiple locations within a metropolitan area would have sufficient traffic volume, fleet mix in the traffic, congestion patterns, terrain and meteorology to fit the recommendations for these monitors. Limiting the required monitoring to only one or two locations in cities with millions of people severely limits the information available on near-road exposure in metropolitan areas.

New research examining the early results of some of these near-road monitors warn that the assumptions made in the initial siting decisions may not adequately reflect the worse sources of highway emissions, even in major urban areas like Los Angeles.[13]

Finally, expanded and varied monitoring is essential to answer substantial questions emerging from the research on the role of near-road NO2 in the documented health effects of the complex traffic pollution and in area-wide pollution, including impacts on diverse communities and on the formation of ozone.

As noted repeatedly throughout the 2016 *ISA*, the role that NO2 from traffic sources plays is still unclear; however, the evidence is strong that traffic emissions harm health, based on the documented health effects from near-road exposure. Is NO2 the main agent of harm or a marker for other agents? Or it is a component of a multipollutant exposure mix that compounds the harms? These questions are some of the same asked in the Health Effects Institute's review in 2010 of traffic-related air pollution. Information has grown, but much more research is needed—and more real world data. EPA acknowledged the potential for using such sites for multi-pollutant monitoring in pursuit of that data.[14]

Monitoring near-roadways plays a particularly important role in reflecting exposure of disproportionately impacted communities, including low income and minority communities. New research shows that these communities have experienced patterns of greater NO2 exposure than higher income or white communities even when looking at area monitoring only.[15] Evidence indicates that many minority communities and particularly poorer communities also experience higher traffic pollution exposure[16] as well as higher rates of asthma and other health concerns that make them even more vulnerable.

Even people who solely use these roadways for transportation spend significant time in locations where they are exposed to NO2 and other traffic pollutants. As reported in the 2016 ISA, the Census Bureau found that 15.6 % of the public who work outside the home spend 45 minutes or more commuting to work. For professional drivers, police officers and others, their work requires them to spend even more hours each day exposed to these emissions. The 2016 ISA noted that tests on NO2 levels in their vehicles has repeatedly supported their higher exposure.[17]

EPA has also recognized that the complex role roadway NO2 plays in the formation of ozone levels. Even within different large cities, changes in NOx levels can have different impacts on the ozone levels in core urban areas compared to areas outside the urban zone. Using modeling, EPA found that different large cities can have very different results from similar changes to NOx emissions.[18] These models add to the need to accurately represent near-road exposures in the cities of all sizes, not just those where monitors currently exist.

Clearly, additional monitoring will add much needed information that can further explain the complex impact that NO2 can have on human health. A strong, diverse and expanded monitoring network must exist to provide answers to these and other questions. Eliminating the third round of monitoring on the 2010 standards would ensure that we are failing to adequately protect the health of millions of Americans. We urge EPA to reconsider this proposal and retain the requirement for near-road monitors in smaller metropolitan areas.

Sincerely,

Allergy & Asthma Network

Alliance of Nurses for Healthy Environments

American Lung Association

American Public Health Association

American Thoracic Society

Asthma & Allergy Foundation of America

Children's Environmental Health Network

Health Care Without Harm

National Environmental Health Association

Physicians for Social Responsibility

Trust for America's Health

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[1] U.S. Environmental Protection Agency. Integrated Science Assessment for Oxides of Nitrogen -- Health Criteria. EPA/600/R-15/069. January 2016.

[2] Centers for Disease Control and Prevention. National Center for Health Statistics. National Health Interview Survey, 2007-2010 and 2014. Analysis performed by American Lung Association Epidemiology and Statistics Unit using SPSS software.

[3] U.S. EPA, "Primary National Ambient Air Quality Standards for Nitrogen Dioxide, Proposed Rule." 60 *Fed. Reg*. 134 (15 July 2009).

[4] U.S. EPA, *ISA*. 2016 Executive Summary, page 1xxxvii.

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