

FreshDirect depot brings increased traffic to South Bronx

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Study site, including locations used for traffic counting, air quality measures, and noise measures. Credit: Columbia University

The 2018 opening of the FreshDirect warehouse in Mott Haven, Bronx, significantly increased truck and vehicle flow within that neighborhood, according to a study led by scientists at Columbia University Mailman

School of Public Health. Increases in traffic translated into small increases in air pollution and noise. Results are published in the *International Journal of Environmental Research and Public Health*.

Between June 2017 and May 2020, the researchers collected measurements of traffic, [air quality](#), and noise at eight sites near the warehouse, including four residential homes and a public housing complex. They observed an increase in truck and vehicle flow, especially during the overnight hours, with an overall traffic increase between 10 and 40 percent. The increased traffic at one monitoring site were not adequately predicted by the facility's environmental assessment prior to construction. Based on the relationship between traffic and [air pollution](#), the researchers estimated increases of 0.06 dBA (noise) and 0.003 µg/m³ (black carbon air [pollution](#)).

Mott Haven has multiple major sources of air pollution, including two interstate highways, a large food distribution hub in nearby Hunts Point, and two waste transfer stations. As a result, the neighborhood experiences average air pollution levels higher than the Bronx or New York City as a whole. The area has a very high incidence of child asthma emergency department visits compared to the Bronx and New York City. Other [health concerns](#) include elevated obesity, diabetes, and hypertension rates, which can be exacerbated by air pollution, and disturbances and health effects from traffic-related noise. In addition, Mott Haven has nearly double the rate of pedestrian injury hospitalizations than New York City as a whole.

"Even small increases in air pollution are a concern to this community which is already overburdened by high levels of air pollution and related health risks," says senior author Markus Hilpert, Ph.D., associate professor of environmental health sciences. "In most New York City neighborhoods, air pollution levels have been in decline, and air pollution sources have been reduced or removed, not added. Mott

Haven, which had higher than average amounts of pollutants from traffic and other sources even before the opening of this warehouse, is an exception."

"Air pollution is known to have disproportionate impacts on the health of populations with lower socio-economic status and ethnic and racial minorities," adds first author Jenni A. Shearston, MPH, a doctoral student in environmental health science at Columbia Mailman School.

"Rather than building facilities that increase traffic, a known risk factor for negative health outcomes including asthma, New York City should invest in environmental structures such as public parks and open spaces to benefit the health of vulnerable groups."

The authors acknowledge several limitations to their study. Air quality and noise were only measured before the warehouse opened, and not after. Estimates for warehouse-related air pollution increases are based on assessments of traffic contributions to air pollution and noise derived from actual air pollution, [noise](#), and traffic measurements, as well as the measured warehouse-related changes in traffic. In addition, construction of the warehouse could have increased traffic before the facility opened, which would minimize any observed changes. The warehouse may also have opened earlier than the estimated date of October 2018.

Furthermore, the facility may increase traffic further in the future if their business continues to grow, making estimations of the impact of the facility on [traffic](#) even further underestimated.

More information: Jenni A. Shearston et al, Opening a Large Delivery Service Warehouse in the South Bronx: Impacts on Traffic, Air Pollution, and Noise, *International Journal of Environmental Research and Public Health* (2020). [DOI: 10.3390/ijerph17093208](https://doi.org/10.3390/ijerph17093208)

Provided by Columbia University's Mailman School of Public Health

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