

South Bronx traffic congestion worsens, raising health and safety concerns

April 13 2022



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Automotive congestion worsened between 2017 and 2019 in residential and mixed-use neighborhoods of Mott Haven and Port Morris in the South Bronx, an area already overburdened by environmental pollution

from interstate highways and industrial activity. The study was led by researchers at Columbia University Mailman School of Public Health, in collaboration with local environmental justice organization South Bronx Unite. The findings appear in the journal *Environmental Science and Policy*.

Traffic-related air pollution contributes to high rates of asthma prevalence in Mott Haven and Port Morris (17 percent of children ages 4 and 5) and [traffic](#)-related pedestrian injuries (43 hospitalizations per 100,000 people vs. 23 citywide). Traffic-related air pollution is also associated with hypertension, heart attacks, and stroke.

"High air pollution levels and high rates of asthma in the South Bronx are linked to [traffic congestion](#), which our study finds have worsened in recent years," says study senior author Markus Hilpert, associate professor of environmental health sciences at Columbia Mailman School. "Disparities between the South Bronx and Manhattan are at risk to worsen with the implementation of congestion pricing, which only limits traffic to Manhattan's central business district."

The researchers analyzed Google traffic data in the South Bronx between 2017 and 2019. Traffic congestion increased significantly throughout the day in mixed-use areas next to the Harlem River Yards (HRY) district where FreshDirect, a large online grocery warehouse, opened in 2018. Congestion also increased significantly at night in a nearby, highly populated residential area, potentially resulting in increased traffic-related sleep disturbances. Congestion increased along road stretches used by pedestrians and cyclists to access recreational areas on Randall's Island, potentially increasing the risk of traffic-related injury.

Their analysis did not show that changes in congestion were solely attributed to traffic related to the online grocery warehouse. However,

the increased congestion in mixed-use area they observed during night-time hours was consistent with their previous work, which found a link between increases in traffic at two locations with the opening of the warehouse. An earlier study, also found increases in levels of atmospheric black carbon, a tracer for traffic-related air pollution, due to the warehouse opening.

"Monitoring was done in areas where high concentrations of residents live, work and go to school," said co-author A. Mychal Johnson, co-founder of South Bronx Unite. "The monitoring also focuses on routes that pass New York City Housing Authority developments, where our community has one of the highest concentrations of public housing in the city."

The researchers say the methods used in this study can be applied in many cities globally as long as crowd-sensed traffic data can be acquired.

"Our approach can be used to empower local communities to advocate for measures to mitigate the environmental health impacts of traffic," says co-author Diana Hernández, associate professor of sociomedical sciences at Columbia Mailman School. "Moreover, it can be used to extend the scope of environmental assessments and impacts statements."

"Environmental justice areas experience pollution from multiple sources. With increased sources of pollution comes increased [health impacts](#)," says first author Anisia Peters, previously a research intern at Columbia Mailman School. "While there is research assessing the adverse effects of air pollution, minimal research exists on assessing neighborhood-scale traffic from crowd-sensed traffic data. This study can help increase awareness of potential health risks among residents which can eventually lead to steps to help alleviate the problem from the source."

Mott Haven and Port Morris have a long history of developments that caused traffic to increase, starting perhaps in 1939 with the construction of the six-lane Major Deegan Expressway, and in 1962, the six-lane Bruckner Expressway. HRY, a 106-acre state-owned lot on the Port Morris waterfront, provides a home to several traffic-intensive operations, including a shipping center, a municipal waste management facility for the entire Bronx, and a printing plant of a major newspaper. In 2014, the New York State Department of Environmental Conservation prioritized the Mott Haven-Port Morris Waterfront Plan to create shoreline resiliency and waterfront access for the South Bronx community. In the last decade, numerous large residential buildings have been built in the mixed-use area in Port Morris.

More information: Anisia Peters et al, Assessing neighborhood-scale traffic from crowd-sensed traffic data: Findings from an environmental justice community in New York City, *Environmental Science & Policy* (2022). [DOI: 10.1016/j.envsci.2022.03.010](https://doi.org/10.1016/j.envsci.2022.03.010)

Provided by Columbia University's Mailman School of Public Health

Citation: South Bronx traffic congestion worsens, raising health and safety concerns (2022, April 13) retrieved 25 April 2024 from <https://phys.org/news/2022-04-south-bronx-traffic-congestion-worsens.html>

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