

ALBANY SOUTH END COMMUNITY AIR QUALITY STUDY



Department of
Environmental
Conservation

Traffic-Related Air Pollution (TRAP) Results

October 2019

What You Need to Know

- Findings about traffic flow through Albany South End:
 - Monday through Friday, there is an increase of traffic due to commuters between 7–9 a.m. and 4–6 p.m. (see figure 1). Commuter traffic is generally cars, motorcycles, and pickup trucks.
 - However, most traffic pollution comes from a steady flow of vehicles, such as trucks and buses, that travel the route throughout the day (see figure 1).
- Traffic pollution is higher on South Pearl Street at the Ezra Prentice Homes than at the Third Avenue Study background monitor, which is on a road with less truck traffic.
 - Particle concentrations are higher along South Pearl Street at Ezra Prentice than near the train tracks in the Port of Albany.
 - Particle concentrations are slightly higher along South Pearl Street at Ezra Prentice than at other monitor locations in the neighborhood.
- DEC and other agencies are taking steps to reduce traffic pollutants and benzene.

About Traffic-Related Air Pollution (TRAP)

Traffic-related air pollution (TRAP) is a mixture of pollutants, including particulate matter and gases. Particulate matter is a mixture of multiple components and particle sizes, including PM₁₀ (10 microns or less in size), PM_{2.5} (2.5 microns or less in size), black carbon (BC) (less than 2.5 microns in size), diesel exhaust particulate matter, and ultrafine particles (UFP) (less than 0.1 microns in size). Gases released include carbon dioxide, carbon monoxide, nitrogen oxides, benzene, 1,3-butadiene, acetaldehyde, and formaldehyde. For some TRAP pollutants, trucks emit 10 to 100 times more than cars because they're heavier and burn more fuel. For this Study, TRAP is characterized by measurements of UFP and BC.

Traffic-Related Air Pollution Results

TRAP is higher along South Pearl Street at Ezra Prentice compared to the background monitor.

TRAP is approximately 50% higher along South Pearl Street at Ezra Prentice than at the background monitor on Third Avenue, where truck traffic is minimal. TRAP concentrations drop in the afternoon when winds increase and scatter the pollution. With truck traffic heavy all day on weekdays along South Pearl Street at Ezra Prentice, TRAP levels follow the increased number of trucks more closely than the number of cars (see figure 2).

More particles are coming from motor vehicles than from activities in the Port of Albany.

Portable air monitors at Ezra Prentice found repeated high measurements of ultrafine particles and black carbon from high-emitting vehicles (HEVs) for brief periods (less than one minute). These data were collected for five-hour intervals over multiple days. It is unlikely these peaks are from other transportation sources, such as trains or marine vessels on the Hudson River. First, air monitors located close to Port of Albany trains did not show repeated peaks like those found near South Pearl Street (see figure 3). Second, both marine vessels and trains move more slowly and less frequently. However, while they are not identified as an important contributor of emissions in this study, train activities do have other negative impacts on the community, such as noise, ground vibration, and safety concerns.

Stationary air monitoring at the Ezra Prentice Homes found greater PM₁₀ and PM_{2.5} weekday concentrations than other nearby stationary monitors (see figure 4). Most of the increase was due to more truck traffic. Additionally, pollution is higher at Ezra Prentice when the wind blows from the northeast, east, and southeast directions across South Pearl Street. In the afternoon, increasing wind speeds decrease air pollution by scattering the pollutants. The locations for the other monitors were the Albany County Health Department ((ACHD) operating since 1973) and Third Avenue.

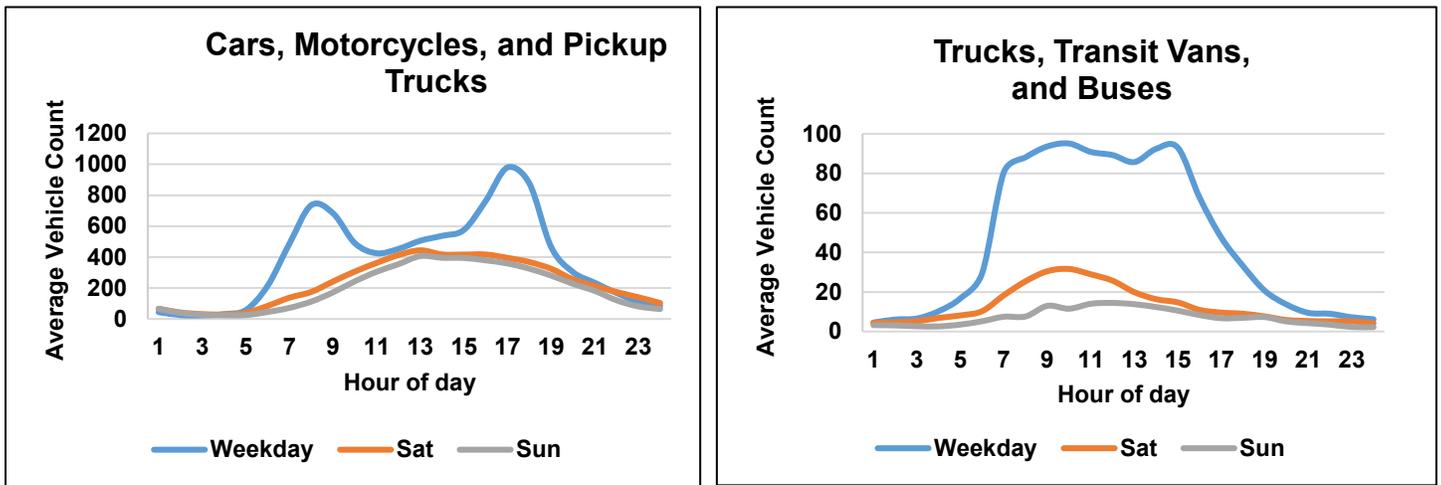


Figure 1. Hourly Pattern for Cars and Trucks

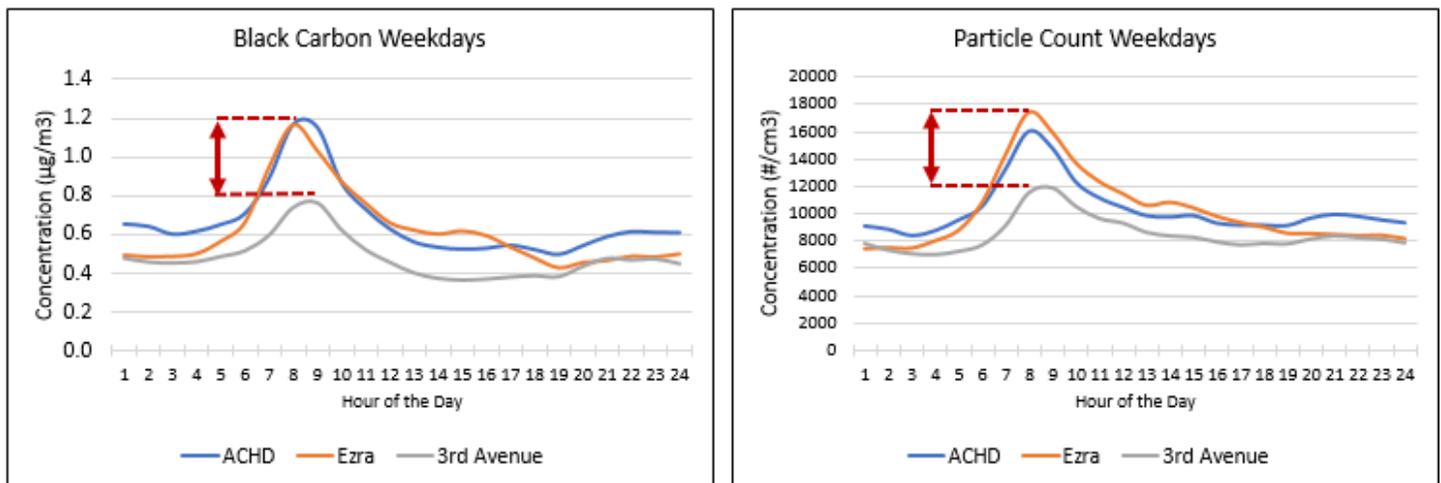


Figure 2. Black Carbon and Ultrafine Particle (TRAP) Measurements at Ezra Prentice and 3rd Ave.

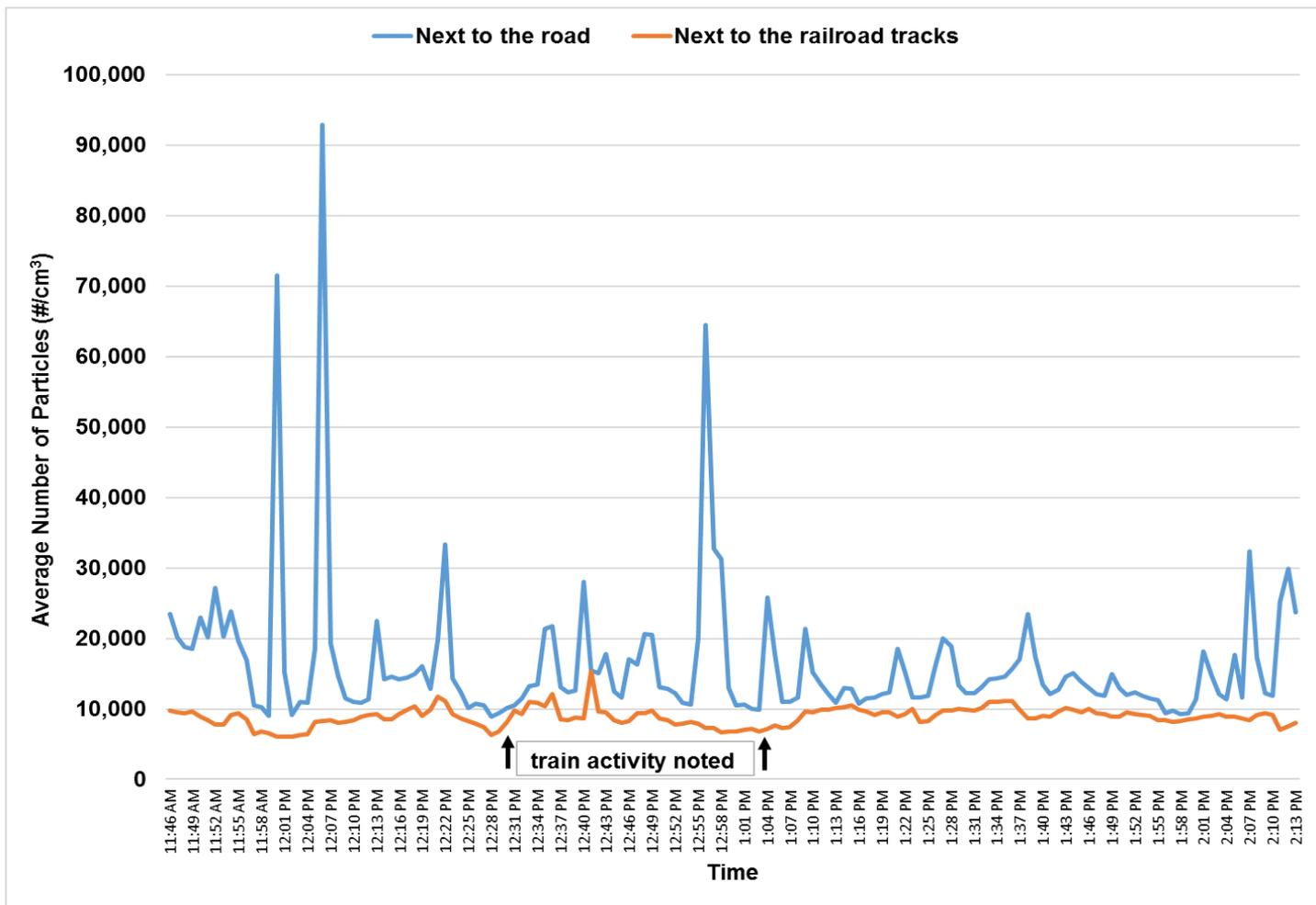


Figure 3. Average Number of Ultrafine Particles Next to Road and Railroad Tracks

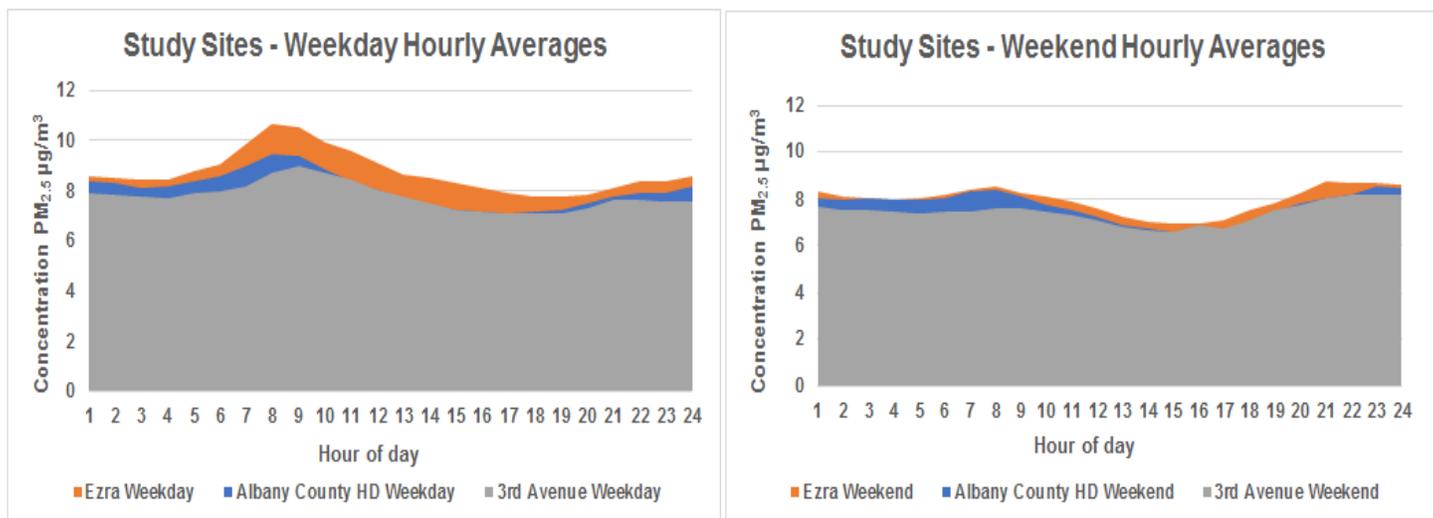


Figure 4. Hourly Pattern for PM_{2.5} – Weekdays and Weekends

What are DEC and state and local partners doing to reduce TRAP exposures?

Reducing traffic pollution

- DEC is working with identified vehicle fleets to evaluate ways fleets can reduce emissions (removing or retrofitting specific high-emitting vehicles).
- DEC and DOT are making \$20 million available from the Volkswagen settlement and other resources to fund clean trucks statewide, with a focus on environmental justice communities like the South End. DEC has allocated an additional \$52.4 million for future projects to replace transit, school, and paratransit buses statewide.
- DEC continues to conduct periodic enforcement checks on South Pearl Street and impose fines on trucks and buses with high emissions.
- DOT has reclassified four roads within the Port of Albany. This change will make the routes within the port eligible for transportation grants.
- DOT is committed to providing technical support to the City of Albany, including direct engineering assistance, in support of the city's continued assessment of South Pearl Street and potential alternative routes for truck traffic.
- The City of Albany's Mayor's Office is helping to coordinate the voluntary rerouting of frequent truck traffic by several businesses in the South End, and has directed the Albany Department of General Services (DGS) to prohibit its vehicles from using South Pearl Street other than for regularly scheduled solid waste pickup and street cleaning. DGS will also purchase a street-cleaning vacuum (not a sweeper) to help reduce road dust.
- DEC, the Mayor's Office, and the Albany Housing Authority (AHA) are leading a workgroup to develop mitigation strategies and ensure implementation of overall approaches. The workgroup will evaluate the effectiveness of roadside barriers, such as green walls, where appropriate.

Reducing air pollutants indoors

- AHA is working to minimize residents' exposure to airborne pollutants by providing professionally installed window air conditioners at Ezra Prentice, beginning with residences closest to South Pearl Street and moving outward.
- AHA is also evaluating other strategies, such as the effectiveness of central air conditioning.
- AHA will conduct door-to-door advocacy with healthcare partners to increase awareness and education related to indoor air quality.

Where Can I Find More Information?

- Read the full Albany South End Air Quality Study at: <https://on.ny.gov/southendstudy>.

Next Steps

- Evaluate the effectiveness of reduction strategies by continuing to monitor TRAP in the Albany South End community.

CONTACT INFORMATION

Division of Air Resources

New York State Department of Environmental Conservation

625 Broadway, Albany, NY 12233

P: (518) 402-8402 | DAR.web@dec.ny.gov

www.dec.ny.gov