

New York City Community Air Survey (NYCCAS) - Fine Particle (PM_{2.5}) Trends, 2009 – 2016

Summary

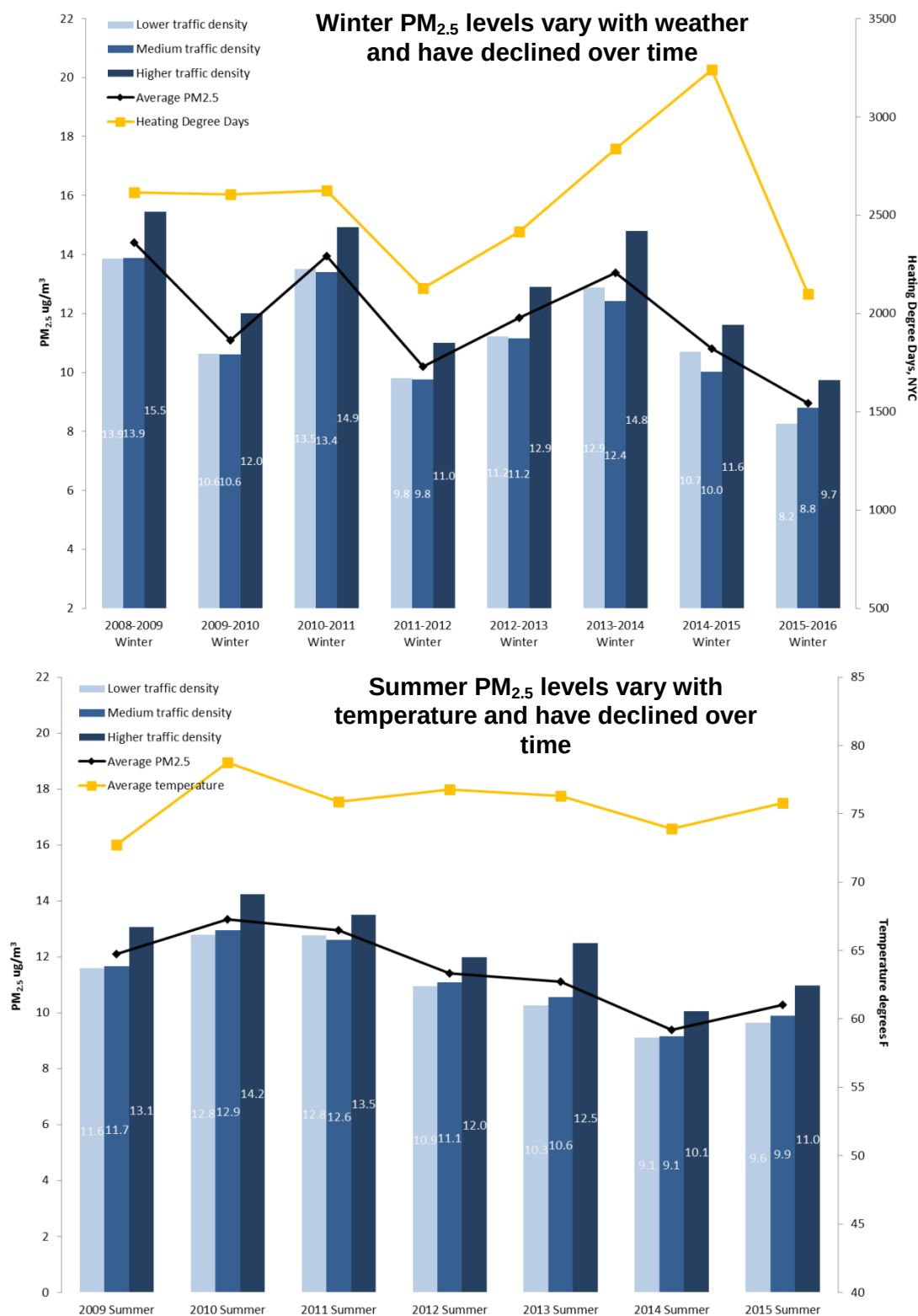
- Year to year changes in average PM_{2.5} concentrations can be caused by differences in weather and local or regional emissions.
 - PM_{2.5} concentrations over the past 8 winters have varied with heating demand, reflecting emissions from heating fuels. In the winter of 2014-2015, despite colder temperatures and more heating demand, PM_{2.5} levels decreased.
 - Summertime PM_{2.5} concentrations have been generally declining. The increase in summer PM_{2.5} concentrations from 2009 to 2010 was likely due in part to unusually cool weather during the early summer of 2009 and decreased emissions from electric power generation.
- The overall decrease in PM_{2.5} from 2009-2016 may be due to reduction in emissions because:
 - Shifts in fuel types used for power generation and building space and water heating from more polluting residual heating oils to cleaner distillate oils and natural gas.
 - Reductions in emissions from upwind coal burning electric power stations because of federal regulations.
 - Reduction in emissions from trucks and other motor vehicles as older vehicles are replaced with newer, less polluting models.
- Emissions from traffic and buildings continue to cause higher PM_{2.5} concentrations in locations where these sources are most concentrated.

¹ Heating Degree Day is the number of degrees that a day's average temperature is below 65 degrees F, the temperature below which buildings need to be heated.

² www.eia.gov

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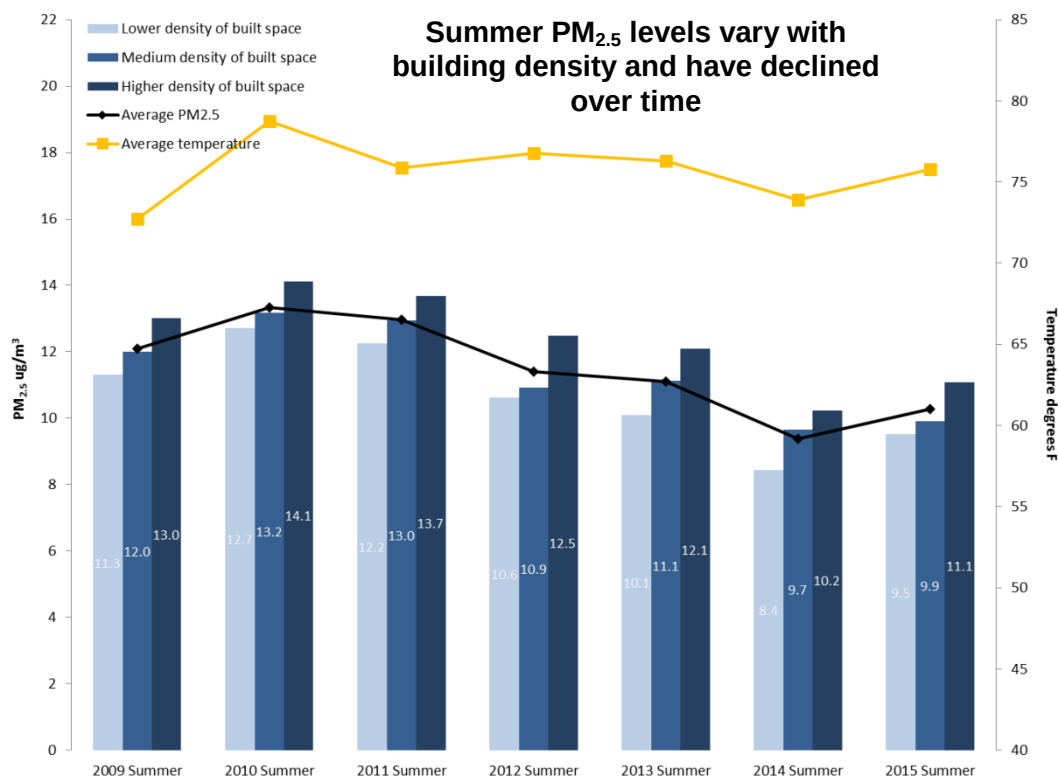
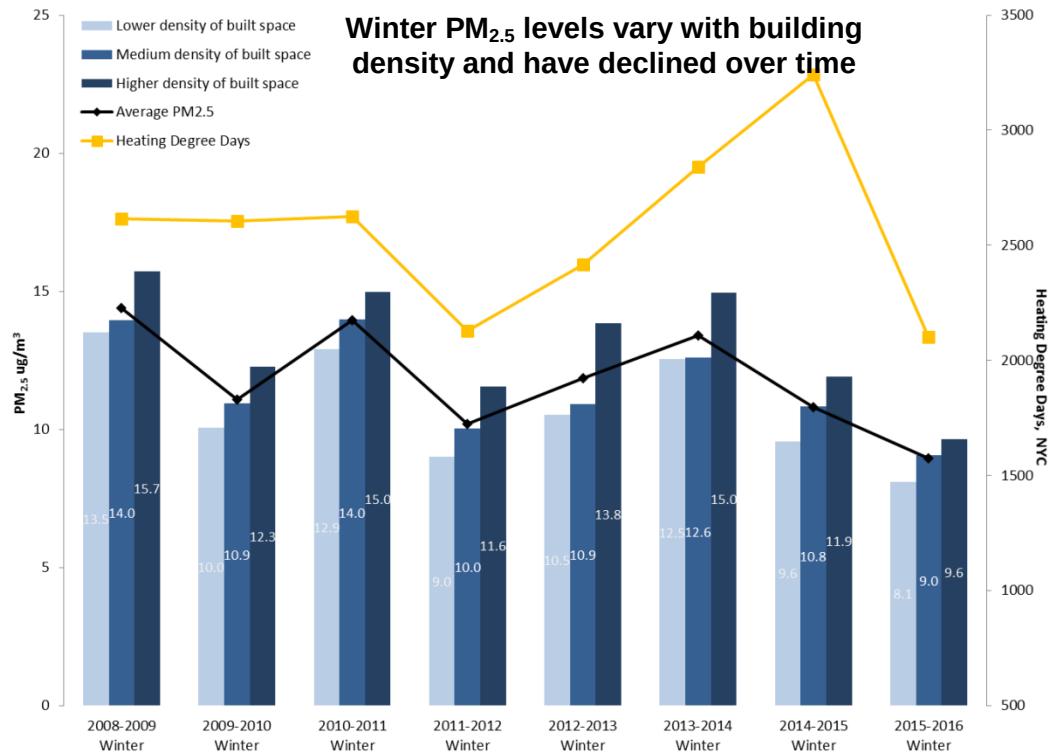
Seasonal average PM_{2.5} concentrations, by year and traffic density



Nearby traffic is estimated within 1 km of sampling location. Each category includes one-third of sampling sites with a traffic density of low, 126-11844; medium, 11844-23155; and high, 23155-23155 vehicle-kilometers per hour. Data source: New York Metropolitan Transportation Council. NYCCAS data based on 60 sites continuously monitored from 2008 through 2016.

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Seasonal average PM_{2.5} concentrations by year and building density



Density of built space is estimated as total interior built space within 900m. Each category includes one-third of sampling sites, with total interior built space area of low, 0-1.07; medium, 1.07-2.63; high 2.63-21.7 square kilometers. Data source: New York City Planning PLUTO tax lot data.