

A!ert

dvrpc | May 2013

Alert is a monthly update on transportation and air quality planning activities in the Delaware Valley.



Health and Air Quality

DVRPC Region Listed in Top 25 Most Ozone and PM_{2.5} Polluted Regions in the Country in the American Lung Association's 2013 State of the Air Report

The Philadelphia-Camden-Vineland PA-NJ-DE metropolitan region¹ once again was ranked in the top 25 most polluted regions for ozone and fine particles (PM_{2.5}) by the American Lung Association (ALA) in their *State of the Air* report released in April 2013. The region was ranked as the 20th worst region for ozone pollution, and 11th for long-term (annual average) fine particle pollution (PM_{2.5}). The region dropped off of the list for short term (24-hour average) PM_{2.5} pollution. The ALA used quality-assured data for the period 2009 to 2011 to develop the 2013 report card on ozone and particle pollution for the nation's cities and counties.

The report also ranks individual counties based on the number of days that air quality reaches unhealthy levels (code orange and above) on the Air Quality Index. Of the eight counties in the DVRPC region that were graded, every county, once again, received an "F" grade for ozone pollution. Burlington County does not have an air quality monitor and was not graded in this report. Chester County received a failing grade for short term PM_{2.5} pollution, and Chester and Delaware counties received failing grades for annual PM_{2.5} pollution.

The ALA used the PM_{2.5} daily standard of 35mg/m³, adopted in September 2006, and the ozone standard of 75 parts per billion, adopted in March 2008, to determine the unhealthy range for short-term particle pollution and ozone.

The 2013 *State of the Air* report shows some positive trends in the nation's air quality. Of the 25 worst regions for ozone, 15 regions showed significant improvement in ozone levels, with 13 of those regions having the cleanest years since the ALA has been publishing the *State of the Air* report in 1999. The trend was similar for particle pollution, with 18 of the 25 worst regions improving in long-term particle pollution, and 16 having their cleanest years yet.

Levels of short-term particle pollution did show increases since the previous report for the first time since the data was recorded. Many of these short term spikes occurred in winter months and were associated with heating fuel, including wood burning stove, pollution.



Save the Date

**Monday,
May 20, 2013**

**Philadelphia Diesel
Difference Working Group
10:00 am**

*Location of Meeting:
DVRPC Conference Center
8th Floor
6th and Race Streets
Philadelphia, PA*

**Tuesday,
May 21, 2013**

**Connections 2040 Long-
Range Plan Listening
Session
6-8 pm**

*Location of Event:
The Enterprise Center
4548 Market Street
Philadelphia, PA*

For the third year in a row, the Philadelphia region experienced its lowest average ozone and long-term particle pollution levels since 1999. Recent monitoring data show that ozone and PM_{2.5} levels in the region are below the 1997 Ozone and 2006 PM_{2.5} air quality standards.

According to the U.S. Environmental Protection Agency (EPA), national emissions of ozone and fine particle pollution dropped by 17% and 28% respectively, between 2000 and 2010, even while Gross Domestic Product, vehicle miles travelled, and population grew by approximately 52%, 27%, and 12% over the same time period. Air quality improvements can be attributed to better emissions controls on vehicles, diesel engines, and point sources, such as industry and power plants.

To view the entire 2013 *State of the Air* report, including grading methodology and statistical analysis, please visit the American Lung Association at www.stateoftheair.org

¹ The Philadelphia-Camden-Vineland PA-NJ-DE-MD metropolitan region includes Philadelphia, Bucks, Chester, Delaware, and Montgomery Counties in PA and Camden, Burlington, Gloucester and Salem Counties in NJ.



Air Quality Information

Ozone Interferes with Insects Ability to Find Host Plants

According to researchers from Penn State University and the University of Virginia, ozone pollution has a great potential to alter the interactions between plants and animals. Penn State Professor of Meteorology and lead investigator, Jose Fuentes, explained that insects detect odor with olfactory receptors located on their antennae at very low concentrations and that these receptors sense, and are attracted to, plant-emitted volatile organic compounds at very low concentrations. The researchers found that ground level ozone degrades these volatile organic compounds to the point where they no longer stimulate a response in the insects' olfactory system.

The experiments used Y-tubes with two branches, one of which led to a host plant flower, to test cucumber beetles preference for air streams comprised of ambient air, volatile organic compounds from a host plant, and various mixes of the two with escalating ozone concentrations. When given the choice between ambient air and the host plant tube, the beetles chose the host plant branch 80 percent of the time. The researchers demonstrated that as concentrations of ozone increased, the study subjects chose the path to their host plant less frequently. When ozone concentrations in the experiment reached 80 parts per billion (ppb), the subject beetles showed no preference for either path. The National Ambient Air Quality Standard for ground-level ozone is 75 ppb.

The researchers published their findings in the Journal *Environmental Research Letters* in January 2013 and note that while the findings of this study may indicate that ozone pollution hinders predatory insects' ability to find host plants, it also hinders the ability of beneficial insects, such as pollinators, to find target plant species.

For more information on the article "Ozone impedes the ability of a herbivore to find its host" please visit: <http://iopscience.iop.org>.



DVRPC, 8th Floor
190 N. Independence Mall West
Philadelphia, PA 19106-1520
Phone: 215.592.1800 | Fax: 215.592.9125 | Web: www.dvrpc.org