



SOUTHWEST PENNSYLVANIA  
**AIR QUALITY**  
PARTNERSHIP, INC.

## CHAIR'S COMMENTS

By Harilal Patel, Chair

**Fall 2009**

**Look inside:**

G-20 ad

Review of Summer 09

Natural gas vehicles

Greetings from the new Partnership Chairman. I have been involved with the Partnership since 1995 and it has never been a more exciting time to be a part of our organization.

You might have seen the advertisement the Partnership placed in the Post-Gazette about the region's air quality and welcoming the G-20 to our area. Pittsburgh put its best face on to greet International visitors. The presidential dinner at the "green" Phipps Conservatory was one of the highlights of the G-20's visit. Pittsburgh's image of a smoky city was truly replaced in our visitors' minds with clean blue skies.

### MORE WORK TO DO

Now all that being said, we have come a long way in achieving a true clean air quality in western Pennsylvania. The job is still not done completely. We have small spots of air quality problems remaining in the region and a dubious first place for highest fine particulate in the country. With the world's largest coke manufacturing plant located in the region, we do have higher levels of benzene in the ambient air. Ozone levels are not in full compliance with the Environmental Protection Agency (EPA) air quality standards and thus the Air Quality Partnership has many things to accomplish.

Working to reduce our air emissions, the Partnership is focusing on energy conservation and educating the public about alternative transportation. There are many non-governmental organizations (NGOs) working in this direction in western Pennsylvania and it is about time we unite our efforts and resources to work together and rapidly achieve our goals.

Natural gas vehicles have significant emissions benefits as compared with gasoline, diesel and ethanol, propane, biodiesel and hybrid electric as well. In September, one of our newest board members, Joel Ann Sweithelm, attended a National Gas Vehicle Seminar to learn more. The event was co-hosted by Pittsburgh Region Clean Cities, Marcellus Shale Committee, Allegheny Conference on Community Development, Pittsburgh Technology Council and the Pennsylvania Department of Environmental Protection. Together, we can work toward bringing more natural gas vehicles to our area. (See related story inside).

### YOU CAN HELP TOO

In the next few weeks, the Partnership will weatherproof a local community center to illustrate how easy it is to save energy and money at the same time. We'll be looking for volunteers to spend a few hours to help us with this event. More details to come on the date, time and location.

We are working on revamping our website at [aqpartners.org](http://aqpartners.org). So stay tuned for more information on its unveiling.

You and your organization can contribute to improved air quality in Southwest Pennsylvania by participating in the Air Quality Partnership programs. Help us educate your employees about air quality issues and programs.

If you can help us spread the word by distributing already printed outreach materials at your business or community group, contact the Partnership at [bmallison@consolidated.net](mailto:bmallison@consolidated.net) and we will send you the materials, as well as display boxes if you need them.

Help us raise money to implement our programs. Financial assistance will enable us to get the air quality message out to our business members, as well as out to the media through radio, television and print mediums.

We are working on plans for our winter meeting to be held in early December. If you have any ideas on what you'd like to hear about, please email me at [unipack@windstream.net](mailto:unipack@windstream.net).

# **Partnership Ad in the Post-Gazette Sept. 25, 2009 Welcoming the G-20 to the region**



## Breathing new life into the region

Pittsburgh has come a long way from its smoky past and is looking toward a brighter future. The Southwest Pennsylvania Air Quality Partnership, Inc. welcomes the G-20 delegation to a cleaner, healthier region. The Partnership works with business, government and individuals to improve our region's air quality. Learn how you can help do your share for cleaner air at [www.aqpartners.org](http://www.aqpartners.org).



## Partnership Sponsors Trip to the Strip event May 2, 2009

The Partnership celebrated the National Air Quality Awareness Week with an Alternative Transportation Festival, “**Trip to the Strip**,” on Saturday, May 2 from 11 a.m. to 1 p.m. in the parking lot next to the Firehouse Lounge at 2216 Penn Avenue in Pittsburgh’s Strip District. The “Trip to the Strip” offered information on car and van pooling, ridesharing, transit services, biking opportunities and other alternative transportation modes, as well as a free climbing wall and food.

“National Air Quality Awareness Week is a great opportunity for people to learn more about factors that contribute to ground-level ozone ways they can help make improvements in air quality in our region,” said Past Partnership chair Ann Gerace. “Simple changes in your daily activities such as ride sharing, carpooling or riding a bus to work can have a great impact on the air quality of our region.”

One bus can take 60 cars off the

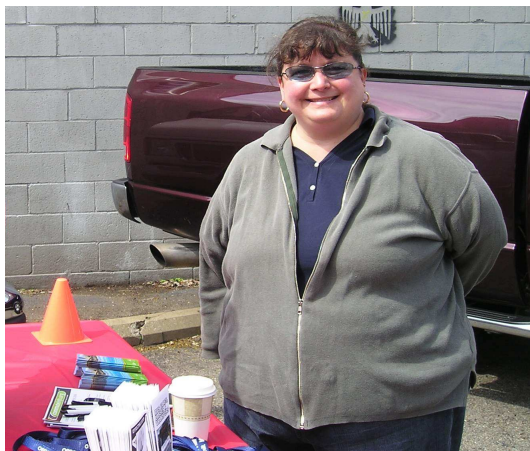


the road. According to the Port Authority of Allegheny County, for every 10,000 solo commuters who utilize an existing public transportation service instead of driving for one year, the nation reduces fuel consumption by 2.7 million gallons.

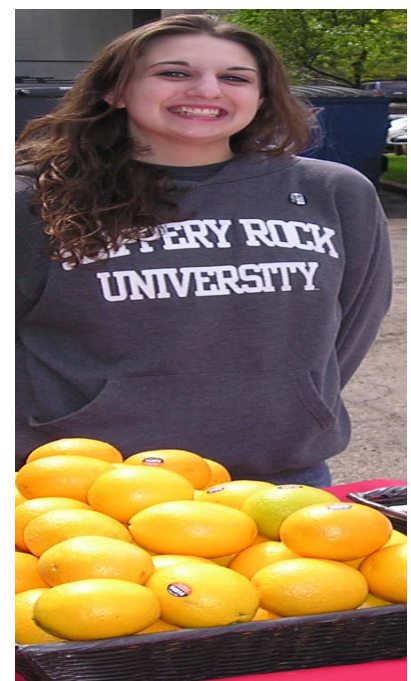
The Trip to the Strip featured a scavenger hunt with prizes and included information and interactive displays from a number of western Pennsylvania organizations including the Port Authority of Allegheny County, a climbing wall from Venture Outdoors, a Zipcar, and information from the Pennsylvania Department of Environmental Protection, Allegheny County Health Department, Southwest Planning Commission’s Commute Info, Free Ride, and Fossil Free Fuels. B-94’s Melanie Taylor made an appearance with the B-94 Prize Patrol.



Board members Ann Gerace, left and Tom Lattner, right, volunteered their time to help with the scavenger hunt during Trip to the Strip (above). On the right, a Right By Nature employee gives out organic oranges.



Commute Info’s Lisa Kay Schwyer, left, offers information about commuting around the Southwest Region. Commute Info and the Southwestern Planning Commission help commuters find the best matches for commuting with a personalized report on bike, van and car pools.





## 2009 SUMMER IN REVIEW

By Sean Nolan, DEP Meteorologist

How was the air quality during the summer of 2009? At the start of the ozone forecasting season in late April, we started to issue forecasts utilizing a proposed, though not final, adjustment in the US EPA Air Quality Index (AQI) scale based around the new PM<sub>2.5</sub> standard. In 2006, the PM<sub>2.5</sub> standard itself was changed and it lowered the 24-hour PM<sub>2.5</sub> concentration threshold from 65 µg/m<sup>3</sup> to 35 µg/m<sup>3</sup>.

We implemented the proposed change to the AQI scale, dropping the lower threshold of Code ORANGE range, from 40.4 µg/m<sup>3</sup> to 35 µg/m<sup>3</sup>, this year so that we could alert those with health effects properly.

The weather during the summer of 2009 can be summarized as having below normal temperature and near normal precipitation. The main reason for the cool, yet wet summer season was the persistent trough over Great Lakes and Northeastern U.S. states. This trough prevailed through the heart of the summer season, keeping clouds and precipitation centered over our part of the country.

Historically, we see the most Action Days being monitored between June and August. However, many of the days (due to ozone) in 2009 were monitored in May, when we saw some warm readings across the region. For May, the temperature had the highest departure above normal during the entire summer season. In addition, precipitation during May was the closest to normal,

the temperature had the highest departure above normal during the entire summer season. In addition, precipitation during May was the closest to normal, which provided more opportunity for ozone formation.

For PM<sub>2.5</sub>, the most number of Action Days occurred during August. This is due primarily to a much more favorable pattern setting up over the region.

The meteorological conditions on all of the Action Days were very similar... an area of high pressure was situated over the region in all cases, which helped to limit vertical mixing within the boundary layer

The high temperature averaged in the mid 80s with dewpoint temperature (a measure of moisture in the atmosphere) averaging in the low 60s.

Color	Code	8-hour Ozone (in ppb)	24-hour PM <sub>2.5</sub> (in µg/m <sup>3</sup> )
GREEN	Good	0 - 59	0 - 15.4
YELLOW	Moderate	60 - 75	15.5 - 35.4
OR-ANGE	Unh. For Sens. Groups	76 - 95	35.5 - 65.4
RED	Unhealthy	96 - 115	65.5 - 150.4
PURPLE	Very Unhealthy	116 and Up	150.5 - 250.4

The AQI scale that we used and how it officially relates to 8-hour ozone concentrations and 24-hour PM<sub>2.5</sub> concentrations.

Month	Temperature Departure (in Degrees Fahrenheit)	Precipitation Departure (in Inches)
May	+1.2	+0.03
June	-0.2	+0.30
July	-3.2	+0.16
August	+0.8	+0.17
September	+0.9	-1.66

A breakdown, by month, of the temperature and precipitation departure from normal at the Pittsburgh International Airport (normal is calculated from the 30-year period: 1971 to 2000).

## A WHOLE NEW LOOK TO THE AIR QUALITY INDEX

Not only did we implement a change in the Air Quality Index (AQI), with regards to PM<sub>2.5</sub>, but we also implemented some improvements, with the help of other agencies, in the way the forecasts are disseminated. These two improvements are outlined below:

1.) **EnviroFlash** –In late April, the Pennsylvania Department of Environmental Protection (DEP) teamed with the U.S. Environmental Protection Agency (EPA) to disseminate the air quality forecasts through the US EPA EnviroFlash system. The EnviroFlash system allows for the use of a customizable email subscription system and allows the user to select what type of forecast they would like to receive (whether it be daily forecast or Action Day forecasts (Code ORANGE or higher)). To sign up for the forecast, go to the following website(s):

For the Pittsburgh Metro Area, go to <http://pittsburgh.enviroflash.info>

For the Liberty-Clairton Area, go to <http://liberty.enviroflash.info>

2.) **NATIONAL WEATHER SERVICE AQI and AQA Statements** – Also back in late April, the PA DEP teamed with the local National Weather Service (NWS) office in Pittsburgh to begin disseminating Air Quality Index (AQI) and Air Quality Alert (AQA) statements. Both of these products are released by the NWS Pittsburgh office. Here is how they are different:

**AQI Statement** – This is a daily statement released by the NWS Pittsburgh office. The statement outlines our forecast in a text based format. To see a sample of this statement, see <http://www.nws.noaa.gov/view/validProds.php?prod=AQI&node=KPBZ>.

**AQA Statement** – This is statement that is ONLY released when we issue an Air Quality Action Day (regardless of pollutant type). This message is sent out via the normal NWS outlets (the same way Severe Weather statements are sent out). An Air Quality Alert is also labeled on the NWS weather map page (seen here: <http://www.weather.gov/largemap.php>). To see a sample of this statement, see <http://www.srh.noaa.gov/data/PBZ/AQAPBZ>.

Month	# of Action Days for PM <sub>2.5</sub> (For All PIT - Normal)	# of Action Days for PM <sub>2.5</sub> (For All PIT in 2009)	# of Action Days for PM <sub>2.5</sub> (For Liberty - Normal)	# of Action Days for PM <sub>2.5</sub> (For Lib- erty in 2009)
May	1	0	5	0
June	4	0	5	1
July	5	0	8	0
August	6	2	7	3
Septem- ber	4	0	7	2
<b>Total</b>	<b>20</b>	<b>2</b>	<b>32</b>	<b>6</b>

Table Displaying No. of Action Days for PM 2.5 – 2009 vs. Normal (Average of 2003-08)

## TAKE ALTERNATIVE TRANSPORTATION

By Alaina Conner, Allegheny County Health Department

Alternative transportation refers to the many numerous ways we can get around without contributing to the problem of air pollution. If everyone in Southwestern Pennsylvania had their own car and drove it every day, what would the consequences be? Not only would everyone be late to work, but the pollution from every car would be immense! According to the American Public Transportation Association, by taking public transit and living with one less car in his or her household, people can save more than \$7,000 a year in gas and car maintenance costs. On top of that, we would significantly improve our air quality!

According to the Environmental Protection Agency, on-road vehicles, including individually owned cars, trucks, and motorcycles, contribute 10% of the nation's particulate pollution, 29% of the nation's hydrocarbon pollution, 34% of the nation's nitrogen oxide pollution, and 51% of the nation's carbon monoxide pollution. That is a significant portion of all the air pollution our country sees.

Public transportation is one easy way to give your car a rest, cut down on pollution, and save yourself money. Parking in high business areas can be difficult and costly, and the increased use of your car brings down the value and can skyrocket the number of miles on your vehicle. Traffic jams are also a sure-fire way to start your day off on the wrong foot, and by riding the bus you let someone else do the driving and can take a few minutes each morning to read, listen to music, or start working early.

Many areas in Southwestern Pennsylvania have local transit authorities, which can help connect you to your destination via public transportation. The Port Authority of Allegheny County serves the most travelers, including those in Pittsburgh. They provided nearly 6 million transit rides in July of 2008, a number that went up 500,000 riders when compared to July 2007. Monthly and yearly Port Authority passes can often be purchased for much less than the cost of a year or month's worth of private commuting. Port Authority currently has a savings calculator on its website, [www.portauthority.org](http://www.portauthority.org), which can help you figure out how much you would save by commuting by bus or rail.

Other public transportation authorities include Westmoreland Transit ([www.westmorelandtransit.com/](http://www.westmorelandtransit.com/)), Beaver County Transit Authority ([www.bcta.com](http://www.bcta.com)), and Mid Mon Valley Transit ([www.mmvta.com](http://www.mmvta.com)), just to name a few. Find out if you can utilize public transportation from your neighborhood; it can make a significant impact on your wallet and your carbon footprint.

Similar monetary savings can be found by carpooling.

According to CommuteInfo.org, an organization that matches commuters with neighbors to travel to work with, with gas at \$4.00 a gallon, simply carpooling with one other person and splitting the cost of gas would bring the price down to \$2.00 per gallon. With four riders, it's only \$1.00 per gallon. Switching driving duty as little as every other day can also extend the life of your car, and will give you time to relax. Carpools can be organized by businesses and organizations for their own employees. Many have established employee pools to help commuters find other commuters to share driving duties with.

### BIKING TO WORK

Though perhaps a relatively new method of commuting, biking to and from work is also a healthy transportation alternative in many different ways. Bike pools have been developed through groups like Bike Pittsburgh ([www.bike-pgh.com](http://www.bike-pgh.com)), which help bikers find neighboring bike-commuters. This way they can travel in groups and benefit from the added safety. Many Port Authority of Allegheny County buses and trains are bike-friendly and are equipped with bike racks. Riding your bike to the bus stop or train station can relieve you of having to pay to park your car in a lot. If going to work on a bike isn't your thing, consider switching an afternoon drive to a friend's house or to the local store to a bike ride. It's healthier for you and the environment.

There are also alternative fuels to consider, like corn or cellulose-based ethanol. Renewable plant-based fuels take carbon dioxide out of the atmosphere as they grow, and thus partially compensate for the carbon dioxide put back in as it burns. Biodiesel fuel is also made by some people out of common household waste oil. Groups like Fossil Free Fuel ([www.fossilfreefuel.com](http://www.fossilfreefuel.com)) can help to convert a standard vehicle to a biodiesel hybrid.

Hybrid electric cars can also help you save money and fuel. A hybrid vehicle utilizes a gasoline engine which charges an electric battery inside. The vehicle can then switch to the electric battery, and cut down on gas consumption and increase the miles per gallon you receive dramatically. The less your vehicle combusts fuel, the less your vehicle pollutes. Consider carpooling in a hybrid electric vehicle to slash gas prices and pollution levels.

We all have places we need to be, and things we need to do. If you stop to consider the alternatives to driving a personal vehicle, it's easy to find ways to cut down on costs and save money, improve your mood, become more efficient, and protect the environment.

# What's an inversion?

By Sean Nolan, DEP meteorologist

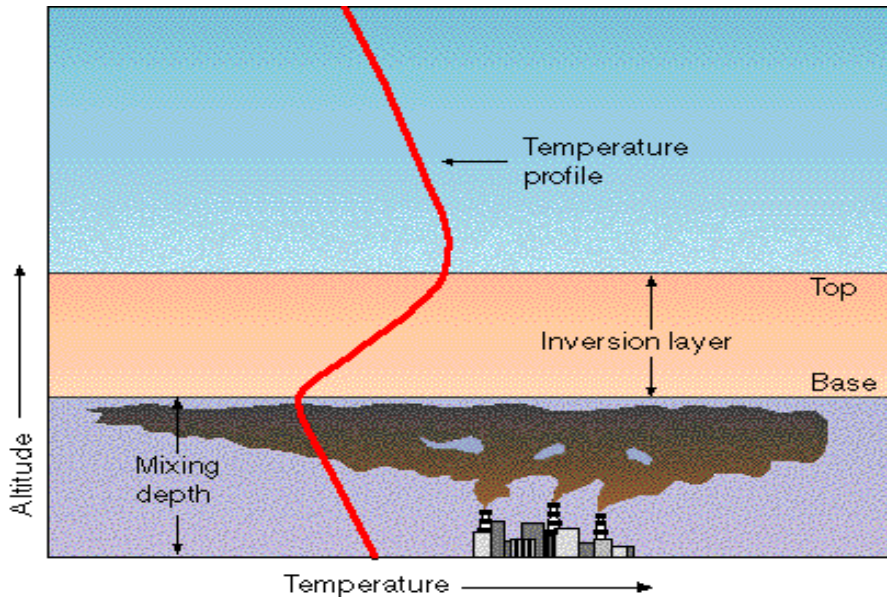
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There are generally two types of inversions: **Subsidence inversion and Radiation Inversion.** A **Subsidence Inversion** took place during the October 1948 Donora smog event. Subsidence inversions take place when an area of high pressure is in place over the region. Subsidence (otherwise known as sinking air) is common place in high pressure systems—the air sinks and in low pressure systems, the air rises. As the air sinks, the air around it warms adiabatically (thermodynamically). Therefore, this allows the air aloft to become warmer than the air at the surface thus causing the inversion to form.

**Radiation inversion** – These inversions can occur at various times of the year, including during the colder months. Generally, here's what happens. In cloud free sky conditions, the ground cools radiatively overnight. However, the atmosphere above the ground stays warm. Therefore, an inversion forms with the warm air overruns the cool ground

During the winter, these inversions can become enhanced due to snow cover (the ground temperature can actually be a couple of degrees cooler just with the presence of snow).

Within inversions, there is very little mixing occurring (generally the wind is calm to light. So there is limited horizontal movement. Also the air does not want to rise because the cool air at the ground is denser than the warm air aloft).



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## USING RAILWAY TO MOVE FREIGHT HELPS ENVIRONMENT

By Logan Hyland, Partnership Intern

The use of railways can often times be overlooked when discussing environmental stewardship.

The United States highway system currently shoulders the majority of our transportation needs, including the shipment of freight and goods. This trend has lead to congested highways that are becoming exceedingly efficient at wasting valuable fuels.

The U.S. Department of Transportation estimates that highway congestion costs roughly 78 billion dollars in wasted fuel. The use of rail freight has the ability to

remove large trucks from the road, thus reducing congestion.

A train can displace 280 truck trailers from the highway system, which makes commute times shorter, and burns less gasoline. This directly influences emissions. Not only can railway freight reduce highway emissions, they use less energy per ton of freight they transport.

A freight train can move a ton of material 436 miles on a single gallon of fuel. This is approximately four times more efficient than a cargo truck.

Although alternative fuels and hybrid vehicles can reduce emissions, management of resources is the most immediate way to improve efficiency. Newer models use diesel filters, as well as hybrid electric systems. Locomotive emissions standards will cut particulates and oxides of nitrogen emissions by 90 and 80 percent respectively.

The railways offer an immediate option to reduce our environmental footprint.



## Time Is Right for Natural Gas

By Joel Ann Sweithelm

More than 100 people attended the Clean Vehicle Education Foundation's workshop at Pittsburgh's Westin Convention Center in August to learn about "The Compelling Case for Natural Gas Vehicles (NGVs) in Public and Private Fleets."

According to Steve Yborra, Director of Marketing and Communications, NGV America, and the workshop moderator/ presenter, fleet managers should consider the following:

- Environment, energy security and market drivers are very favorable to fleets' use of NGVs.
- Many light- medium- and heavy-duty vehicles are available from a growing number of manufacturers. Their performance and reliability now equal and/or exceed that of gasoline- or diesel-powered vehicles.
- The variety of fueling options are growing.
- Federal tax credits and grants enhance NGV's already favorable life cycle advantages.

Resources are available to help you specify, purchase and deploy NGVs and fueling infrastructure.

Yborra also stated that the potential cost savings between gasoline and CNG was as high as \$2.50 a gallon in the spring of 2008! With over 10 million NGVs already in use around the world, they have proven to be a reliable alternative fuel vehicle. NGVs also have an 80-90 percent lower decibel level than diesel engines. And, their maintenance costs are equal to or less than gasoline or diesel vehicles.

Because natural gas is an abundant domestic fuel, with more than 80 percent of our supply located right here in the U.S., there is a well-developed distribution network consisting of 290,000 miles of interstate pipeline

for gas. More recently, improved technologies have made Pennsylvania's Marcellus Shale gas economically viable and have significantly increased our estimated supply base to approximately 120 years!

From an air quality perspective, one of the most impressive statistics mentioned in the workshop is that NGV vehicles reduce greenhouse gas emissions between 20-29 percent.

And, for those who may be concerned about safety issues, Yborra said that natural gas is very safe. It's lighter than air, and dissipates when released. It's colorless, odorless and nontoxic, and does not leak into groundwater. It has a very high ignition temperature of 1000-1100F. And, there are now comprehensive fuel tank, vehicle and station design/manufacturing codes and standards in place.

Yborra stressed that the time to act is now, especially with the current federal and state grant opportunities and tax credits. You can start by contacting your local Clean Cities Coalition. In the Southwestern PA, contact Ryan Walsh [rwalsh@pgh-cleancities.org](mailto:rwalsh@pgh-cleancities.org) at Pittsburgh Region Clean Cities <http://www.pgh-cleancities.org/wordpress/>

For more information about NGVs, visit [www.ngvamerica.org](http://www.ngvamerica.org), or contact Yborra at syborra@ngvamerica.org.

For more information on Pennsylvania Marcellus Natural Gas, go to [www.pamarcellus.com](http://www.pamarcellus.com).

### NGV Websites for more information

**American City & County** magazine supplement addressing NGV applications in municipal government [http://www.ngvamerica.org/pdfs/marketplace/ACC\\_Insert\\_Final.pdf](http://www.ngvamerica.org/pdfs/marketplace/ACC_Insert_Final.pdf) (3.0MB)

**Waste Age** magazine supplement addressing NGV applications in the refuse/recycling sector <http://www.ngvamerica.org/pdfs/marketplace/WasteAgeLoResFINALInsert.pdf>

Available Natural Gas Vehicles and Engines (OEM as well as small volume OEM retrofit systems) <http://www.ngvamerica.org/pdfs/marketplace/MP.Analyses.NGVs-a.pdf>

Federal Tax Incentives information <http://www.ngvamerica.org/pdfs/marketplace/FederalTaxIncentivesSummary-Sheet.pdf>

<http://www.ngvamerica.org/pdfs/FederalVehicleTaxCredit.pdf>

<http://www.ngvamerica.org/pdfs/FederalInfrastructureTaxCredit.pdf>

<http://www.ngvamerica.org/pdfs/FederalFuelTaxCredit.pdf>

Side-by-side comparison summary of the House and Senate NAT GAS Acts as well as other legislation pending in Congress [http://www.ngvamerica.org/gov\\_policy/111th\\_congress.html](http://www.ngvamerica.org/gov_policy/111th_congress.html)

EPA's Region 3 Office in Philadelphia (<http://www.epa.gov/region3>) and Bill Jones ([jones.bill@epa.gov](mailto:jones.bill@epa.gov); 215-814-2023), liaison to the Mid-Atlantic Diesel (Emissions Reduction Program) Collaborative <http://www.dieselmidatlantic.org/diesel/index.htm> housed at the Mid-Atlantic Regional Air Management Association (MARAMA: <http://www.marama.org/index.html>) - emission reduction program funding opportunities.

Ryan Walsh [rwalsh@pgh-cleancities.org](mailto:rwalsh@pgh-cleancities.org) at Pittsburgh Region Clean Cities <http://www.pgh-cleancities.org/wordpress/>



## Why Natural Gas Now?

By Logan Hyland, Partnership Intern

While Natural Gas Vehicles (NGVs) are not exactly new technology, recent provisions of the American Recovery and Reinvestment Act (ARRA) 2009 has given opportunity to this exciting topic. The stimulus package emphasizes alternative fuels, advanced technology, energy efficiency, and reliance on domestic supply. NGVs have the ability to meet these strategic goals, while preserving environmental stewardship.

The goals of the Southwest PA Air Quality Partnership, Inc. can be reflected with the development of NGVs. The ability of natural gas to fulfill such a broad niche cannot be overlooked. The environmental benefits, as well as the economic advantages of NGVs should be recognized.

## INTRODUCING COACH AQ!

The new Southwest Pennsylvania Air Quality Partnership, Inc. mascot has arrived! Following along the Partnership theme, "It isn't just ozone anymore," the mascot has grown from Coach Ozone into Coach AQ.

The purpose of the mascot is to provide a fun, interesting mechanism to get our word out about air quality to young and old alike. The mascot is used at all major Partnership events, in schools, at community festivals and at our members' events.

Streamlined, the new Coach AQ is a bright blue furry creature with big shoes that elicits a smile from even the shiest child. The blue color represents blue skies.

To reserve Coach AQ for your organization's upcoming event or to identify a community event the Partnership should attend, please contact Betsy Mallison at [bmallison@consolidated.net](mailto:bmallison@consolidated.net).

The focal point of NGV development has begun with vehicle "fleets." Busses, taxi cabs, airport shuttles, refuse haulers, and delivery vehicles typically travel more miles than the average commuter. Moreover, these vehicles have specific routes they travel for efficiency. This makes centralized refueling depots feasible for fleets. While many experts agree that the main obstacle is infrastructure, they remain hopeful that the stimulus money can bolster efforts to develop refueling stations.

Basic chemistry reveals the environmental benefits of NGVs. Natural gas's molecular composition has much less carbon than gasoline (octane). Additionally, gasoline

has many chemical detergents and additives that can contaminate groundwater, form chemical smog precursors, and produce particulate matter.

Natural gas has a much higher ignition temperature than gasoline or diesel fuel. Thus, carbon monoxide emissions are reduced by nearly 70 percent. NO<sub>x</sub> emissions can be reduced by nearly 87 percent with the use of NGVs. Natural gas has a limited flammability range, and dissipates into the atmosphere hastily. Natural gas is not toxic, nor corrosive.

A key advantage of NGVs is the ability to displace petroleum usage. In 2005, 97 percent of natural gas in the United States was produced in North America.

If the transportation sector were to transition into natural gas, less oil would need to be imported.



Coach AQ made its debut at Partnership member Audubon Society of Western Pennsylvania's Apple Jamm event on Sept. 26 with Dora the Explorer and Jim Bonner, Audubon's Executive Director, right.