



# Ohio's Clean Diesel School Bus Program

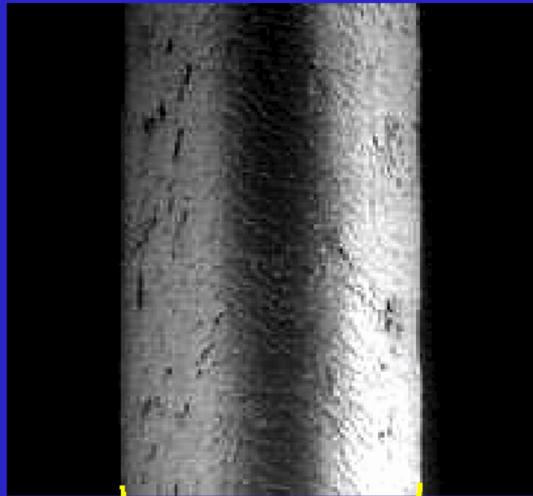
*Winner of a 2008 Leadership Award from the*



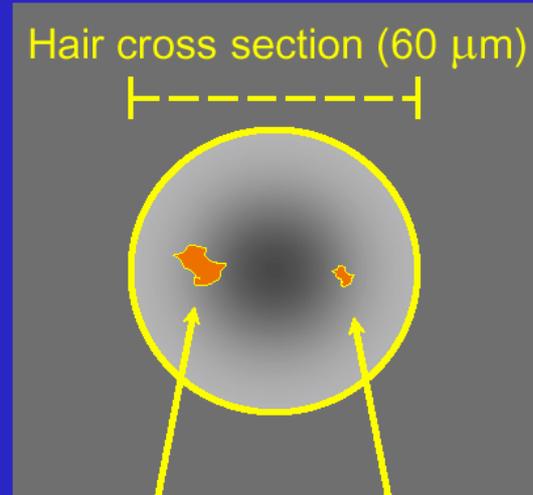
# Why be concerned about Engine Idling and Diesel Exhaust?

- Diesel exhaust contains small soot particles known as fine particulate matter (PM<sub>2.5</sub>).
- Fine particles can lodge in the lungs and aggravate conditions such as asthma and bronchitis.
- U.S. EPA has determined that diesel exhaust is a likely human carcinogen.

# HOW SMALL IS PM2.5?



**Human Hair**  
(60  $\mu\text{m}$  diameter)

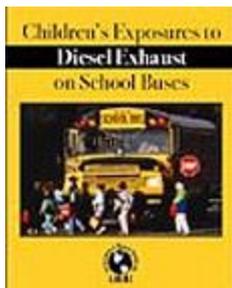


**PM10**  
(10  $\mu\text{m}$ )

**PM2.5**  
(2.5  $\mu\text{m}$ )

*Cite: Health Effects of Fine Particles, Dr. Bart Ostro, October 2003*

# Information on Health Effects



- U.S. EPA's Health Assessment Document for Diesel Exhaust  
[cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=29060](http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=29060)
- University of Cincinnati Childhood Allergy and Air Pollution Study  
[eh.uc.edu/ccaaps/](http://eh.uc.edu/ccaaps/)
- EHHI 2006 "Children's Exposure to Diesel Exhaust on School Buses"  
[www.ehhi.org/reports/diesel](http://www.ehhi.org/reports/diesel)

# What is Ohio EPA Doing About It?

- Since 2006, Ohio EPA's Clean Diesel School Bus Fund provided more than **\$8.3 million** to retrofit **2,622 school buses** with pollution controls, installed idle reduction equipment onto another **1,018 buses**, and removed nearly **204 tons of pollutants** from the air annually.



# Program Goals

- Reduce student and driver exposure to the harmful pollutants in diesel exhaust
- Reduce school bus idling to save fuel and reduce emissions
- Improve local air quality
- Provide financial assistance to Ohio school districts for successful approaches to reducing bus pollution



# Funding Sources

- Penalties collected by Ohio EPA for pollution violations
- U.S. EPA grants to Ohio under the Diesel Emission Reduction Act

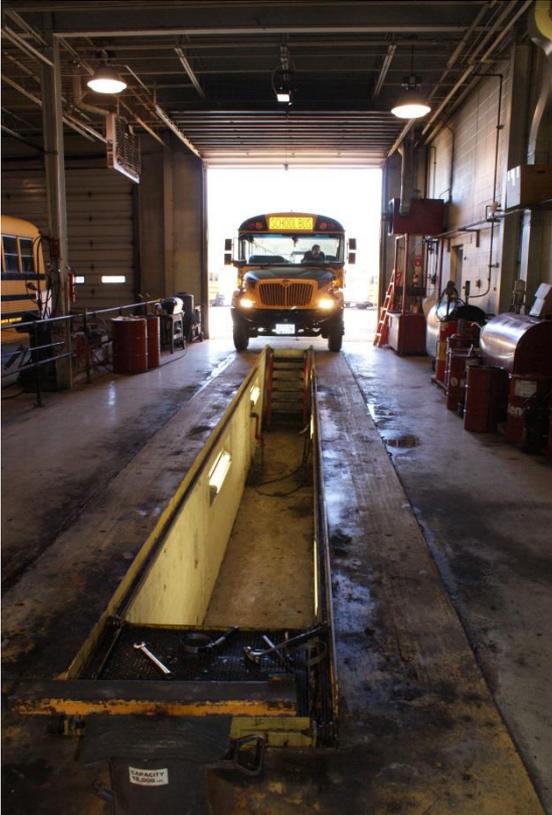


# Why School Buses?



- 1.3 million Ohio children ride school buses.
- School bus commutes potentially expose children to significantly higher concentrations of pollutants than what is measured in the community's outdoor air.
- Children are more susceptible to air pollution than adults because their respiratory systems are still developing and they breathe at a faster rate.
- Buses idle a long time in cold weather to warm up the fuel lines.

# Who May Receive Grants?



- Ohio public school districts
- County boards of developmental disabilities
- School districts that subcontract with commercial school bus companies for student transportation, to retrofit buses owned by those companies

# Priority Grant Recipients

- School districts located in counties designated by U.S. EPA as **non-attainment** for fine particulate national air quality standards
- School districts that have an **anti-idling policy** or employ other measures that reduce air pollution from the district's school bus fleet



# Factors Ohio EPA Will Consider in Awarding Grants

- Anticipated level of PM<sub>2.5</sub> emission reductions, particularly in-cabin reductions
- Demonstrated pollution reduction efforts, such as anti-idling programs in place
- Anticipated level of reduction of other air pollutants such as carbon monoxide and hydrocarbons
- Local air quality (level of non-attainment)

# Grant Application Deadlines

- March 1
- October 15



# Buses Eligible for Retrofits

- Diesel-powered, Types C & D
- Gross vehicle rating of 19,500 pounds or more
- Driven at least 5,000 miles per year
- Emission controls may be installed on “middle aged” buses of model years 1996-2006 only.
- Pre-heaters may be installed on buses of any model year for idle reduction.
- Buses must remain in service for 4 years.

# Verified Technology

- Ohio EPA will only fund equipment verified by U.S. EPA or the California Air Resources Board for specific school bus engines and model years.
- Ohio EPA is not able to verify other technologies.



# Technology Options

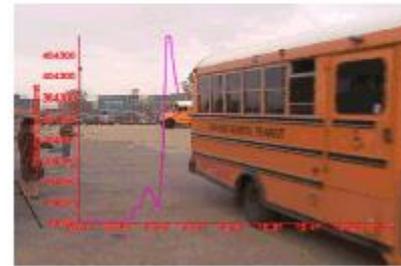
- Diesel oxidation catalysts (DOCs)
- Diesel Particulate filters (DPFs)
- Closed Crankcase Ventilation Systems (CCVs)
- Direct-fired heaters (pre-heaters)



# Review of Technology Options

- U.S. EPA Analysis of Retrofit Technologies  
[www.epa.gov/cleandiesel/technologies/retrofits.htm](http://www.epa.gov/cleandiesel/technologies/retrofits.htm)
- Clean Air Task Force 2005 Study of Effectiveness of Retrofit Emission Controls on School Buses  
[www.catf.us/resources/publications/view/82](http://www.catf.us/resources/publications/view/82)

A Multi-City Investigation of the Effectiveness of Retrofit Emissions Controls in Reducing Exposures to Particulate Matter in School Buses



CLEAN AIR TASK FORCE

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January 2005

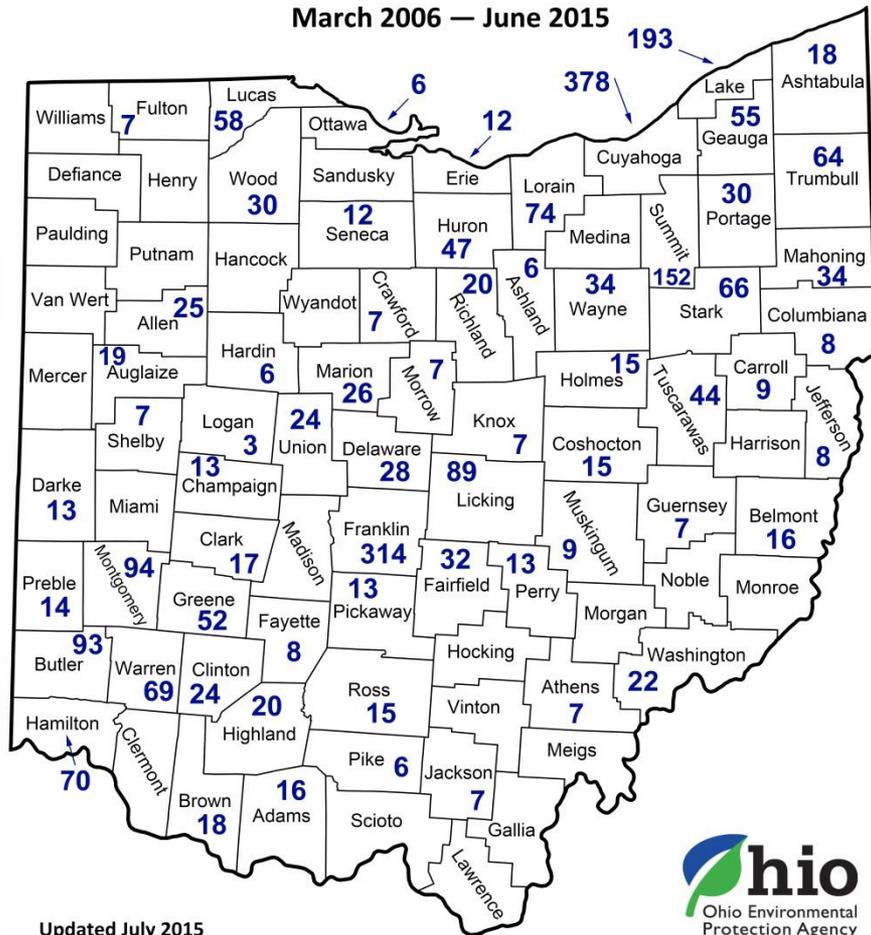
Clean Air Task Force

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# 176 School Districts Received Grants

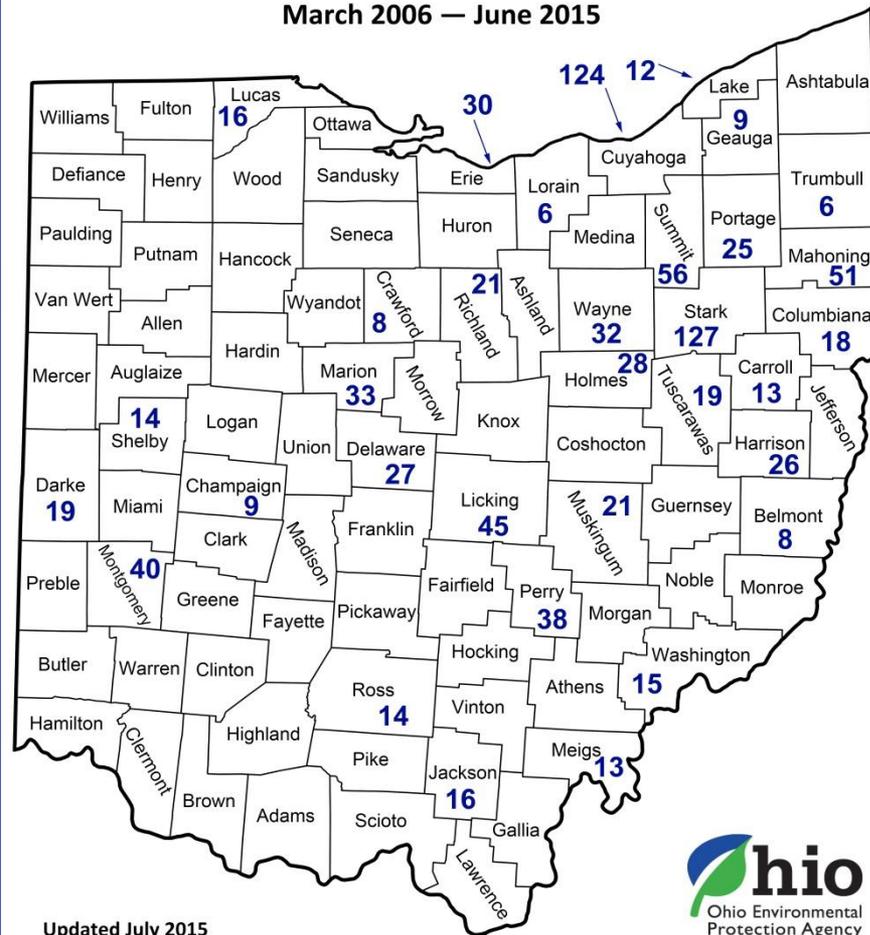
**Ohio Clean Diesel School Bus Fund**  
**Number of School Buses Retrofitted**  
**with Emission Controls by County**  
**March 2006 — June 2015**



Updated July 2015



**Ohio Clean Diesel School Bus Fund**  
**Number of School Buses Equipped with**  
**Pre-heaters for Idle Reduction by County**  
**March 2006 — June 2015**



Updated July 2015

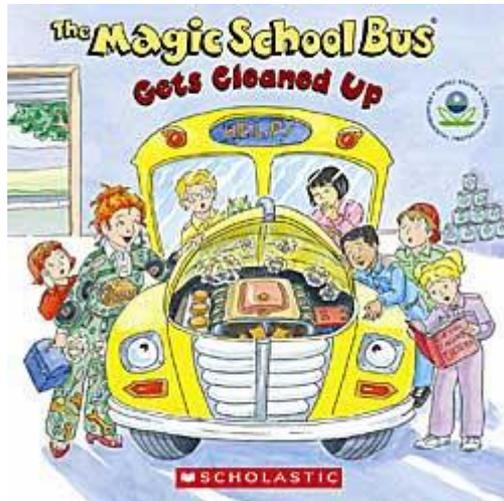


# Other Funding Sources

- U.S. EPA Midwest Clean Diesel Initiative  
[epa.gov/midwestcleandiesel/grants/index.html](http://epa.gov/midwestcleandiesel/grants/index.html)
- Ohio EPA Diesel Emission Reduction Grants for replacement buses and alternative fuels  
[epa.ohio.gov/oeo/EnvironmentalEducation.aspx](http://epa.ohio.gov/oeo/EnvironmentalEducation.aspx)
- List of additional grant sources  
[epa.gov/cleandiesel/grantfund.htm](http://epa.gov/cleandiesel/grantfund.htm)
- U.S. Department of Energy Alternative Fuels Data Center  
[afdc.energy.gov/](http://afdc.energy.gov/)

# Getting the Word Out

- Order free copies of “The Magic School Bus Gets Cleaned Up” in English or Spanish from U.S. EPA [epa.gov/cleanschoolbus/msb-book.htm](http://epa.gov/cleanschoolbus/msb-book.htm)



# What about cars idling on school grounds?

- Students from Max S. Hayes High School in Cleveland joined the Earth Day Coalition's anti-idling campaign, asking parents to turn off their engines while they are waiting to pick up their kids from school.



# What else is Ohio EPA doing to reduce engine idling?

- Grants for signs to help educate residents in the Cincinnati and Dayton metropolitan areas



# Grants for Truck Stop Electrification



# Grants for new idle reduction technologies for locomotives



# For more information

- [epa.ohio.gov/oee/EnvironmentalEducation.aspx](http://epa.ohio.gov/oee/EnvironmentalEducation.aspx) under the “Clean School Bus Grants” tab
- On diesel bus retrofit technology and air quality standards, John Paulian, Division of Air Pollution Control, [john.paulian@epa.ohio.gov](mailto:john.paulian@epa.ohio.gov), (614) 644-4832
- On the grant program, Carolyn Watkins, Office of Environmental Education, [carolyn.watkins@epa.ohio.gov](mailto:carolyn.watkins@epa.ohio.gov) or (614) 644-3768
- U.S. EPA Clean School Bus [epa.gov/cleandiesel/sector-programs/csb-overview.htm](http://epa.gov/cleandiesel/sector-programs/csb-overview.htm)