

# Clean School Buses in Pinellas County

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# Project Partners



Pinellas County School Board  
(PCSB)

United States Environmental  
Protection Agency (USEPA)

Florida Department of  
Environmental Protection  
(FDEP)

Pinellas County Department of  
Environmental Management  
(PCDEM)



# Project Goals

1. Reduce school bus idling by an average of 30 minutes per bus per day by 2007;
2. Retrofit 76 2003 and older buses with new clean technology;
3. Replace 100 pre-1993 model buses with new cleaner buses by 2007



# Project Summary

The Pinellas County School Board (PCSB) used grant funding to retrofit 88.48 school buses with EPA/CARB verified/certified diesel oxidation catalysts (DOC) and crankcase filtration systems (CFS). The buses service the 22nd largest public school district in the nation and seventh largest district in Florida. The PCSB worked with its partners to implement strategies that will continue to reduce emissions from buses, such as idle reduction and bus replacement programs.





# PCSB Diesel Emissions Reductions Strategies





# Idle Reduction Successes

- Established Formal Idle Reduction Policy
- Established idle reduction training during annual summer driver training and new driver training throughout the year.
- Final report data suggest that the idle awareness of the drivers has heightened as a result of the formal driver training program and their knowledge of school bus idle monitoring
- Idling is well below thirty minutes per day goal
- very few idling complaints received by the district
- Citizen awareness has increased



# Idle Reduction Successes

There are 25 million reasons why  
it's important to reduce idling



**CLEAN SCHOOL BUS USA**

YOU ARE OUR HERO...



Please Turn Your Engine Off Whenever Possible

Participated in the National  
Idle Reduction Campaign  
Pilot



# Idle Reduction Lessons Learned

- Drivers rarely have the opportunity to meet outside of annual training meeting
- Change is always difficult, especially changing habits



# Idle Reduction Lessons Learned

## *ECM issues*

- ECM's are not always reliable.
- Utilizing ECMs to read idling is very labor intensive.
- Several ECMs were replaced due to out of range reads or lack of data retrieval upon download.
- Engine Manufacturer's support for ECMs was very limited.

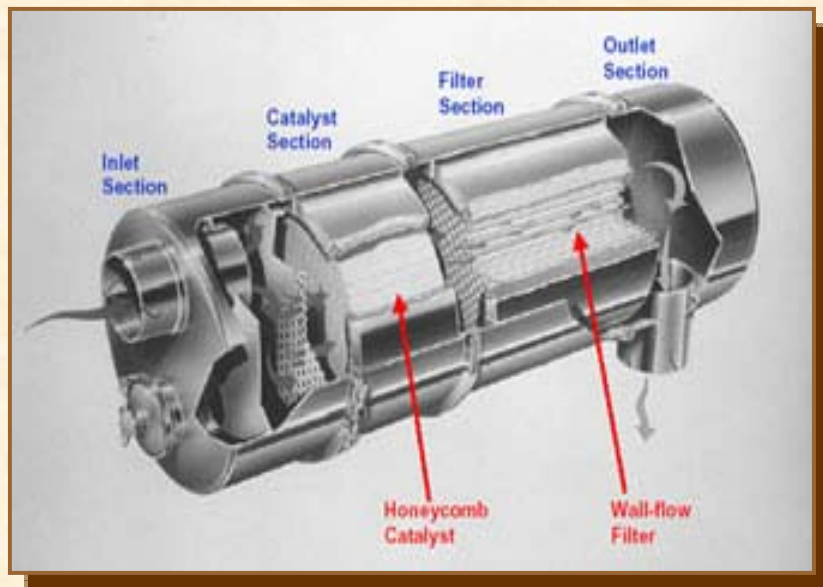


# Retrofits



# Retrofit Successes

Emissions from school buses impact the health of all citizens of Pinellas County!



Recent installation of retrofit devices on our school buses will eliminate 50 tons of air pollutants.



# Retrofit Successes

- 179 DOCs and closed crankcase ventilation (CCV) systems installed on pre-2003 buses
- Actual cost per combined diesel oxidation catalysts and crankcase filtration systems was \$265 less than the original retrofit proposal's projected \$1900/combined unit
- Retrofits were well received





Just When We Thought We  
Reached Our Objectives...



# Retrofit Lessons Learned

## *Accounting Issues*

- Invoices did not match quoted amounts for Total retrofit and install
- Invoices did not match all bus ids easily

# Retrofit Lessons Learned

## *Retrofit Equipment Challenges*

- All retrofits for the Clean School Bus Grant were completed by March 2007. Projected completion was January 2007.
- Ts for the breather lines were plastic and some broke or melted. PCSB staff had to replace.



# Retrofit Lessons Learned

## *Retrofit Equipment Challenges*



Sharp edges existed on installed units' mounting brackets and posed a safety hazard.



We thought we anticipated all challenges...



# Thomas/ 3126 Cat engines



# Thomas/ 3126 Cat engines











DOC issue



# In the End...

- Degree angle of hoses from crankcase ventilation system is important
- The CCV issues with the International DT 466E engines have not been resolved. Buses with these engines will require more frequent CCV filter changes
- Issues involved installation, training, and maintenance issues



# In the End...

- At this point, we have 10 buses with CCV system issues
- The vendor of the retrofit equipment is working with PCSB to resolve issues
- Training supplied by the vendor is important!
- Another 91 pre-2003 buses are scheduled to be retrofitted with DOCs and CCVs once the issues are resolved with the CCV systems



# We Thank Our Partners



# Contacts for Further Information

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