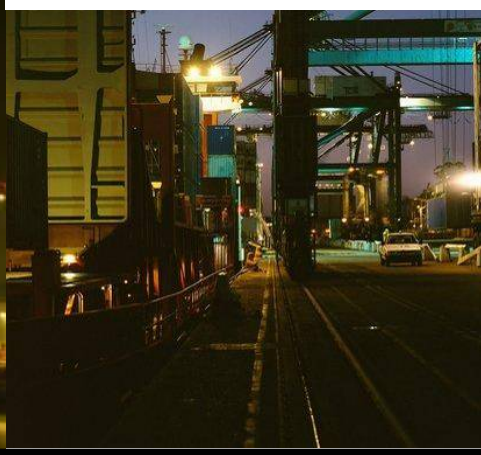


Toxic Pollution from Diesel Sources Brazoria County



Points of Discussion

- Background Information on the characteristics & sources of Diesel
- Adverse Health Effects
- Presence of Diesel Engines in Brazoria County
- Solutions to Reducing Exposure to Diesel Exhaust
- Case stories

Texas Consumes More Diesel Fuel Than Any Other State to Power:

On-Road Diesel Engines

- Light & Heavy Duty Trucks
 - City Transit Buses
 - Passenger Cars
 - School Buses

Off-Road Diesel Engines

- Construction & Farm Equipment
 - Prime & Standby Engines
 - Marine Vessels
 - Trains



- For the same load and engine conditions, diesel engines spew out 100 times more sooty particles than gasoline engines. Source: Natural Resources Defense Council

There is No Escape From Diesel Exhaust



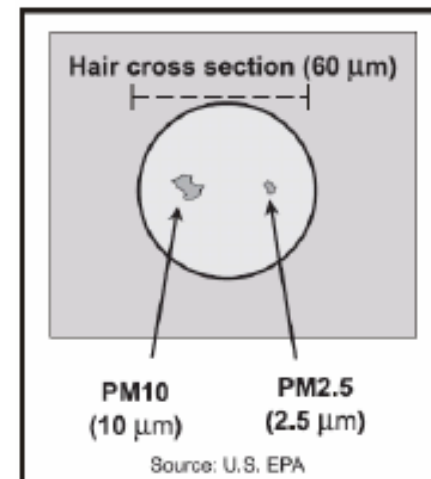
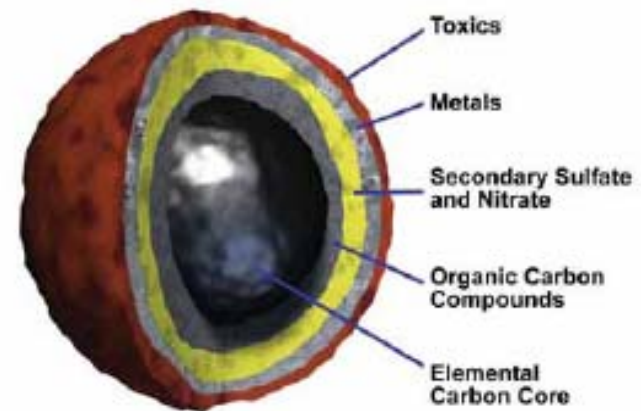
Diesel Exhaust, commonly known as soot, contains over 40 toxic air contaminants—including such known carcinogens as benzene, arsenic and formaldehyde.

Referred to as Toxic Soup

Diesel particulate matter is the most deadly component of diesel exhaust and is primarily emitted in densely populated areas—contaminating the air where people live, work and attend school. This is a problem because entire populations regularly and unknowingly inhale tiny, toxic particles during everyday activities.

DPM is categorized by its size: ultra fine particles $<0.1 \mu\text{m}$, fine particles $<2.5 \mu\text{m}$, and coarse particles $2.5 \mu\text{m} - 10 \mu\text{m}$.

- Nitrates, sulfates, organic chemicals, metals, soil and dust make up the diverse mixture of small particles and liquid droplets
- The average human hair is 30 times larger than the largest fine particle, PM 2.5. Fine and ultra-fine particles peak during rush hour. These small particles easily pass through the throat and nose and into the lung tissue, carrying toxic substances with them.



Diesel particles create obstructions that slow the diffusion of oxygen into the bloodstream.

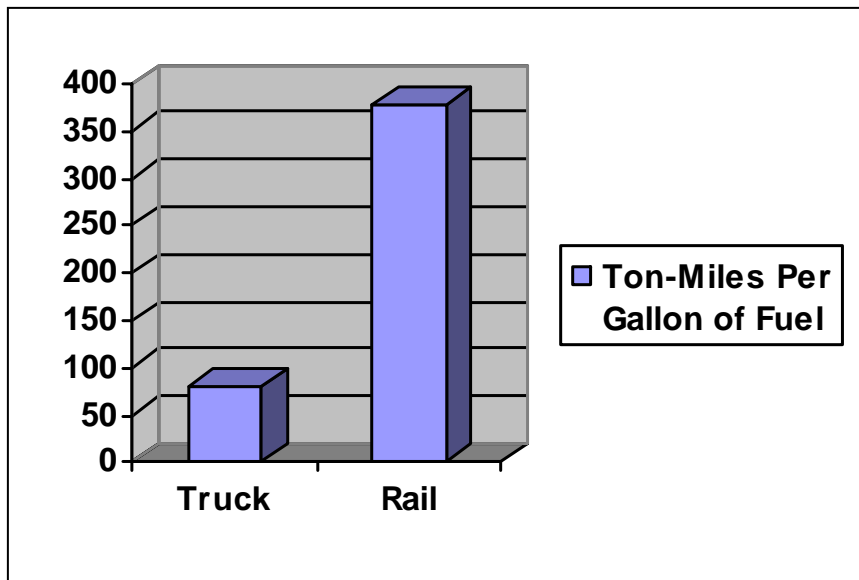
This strain on the lungs and heart damages the respiratory and cardiovascular systems and is linked to:

- premature death • cancer • asthma
- pneumonia • chronic bronchitis • stroke
- breathing difficulty • Sudden Infant Death Syndrome (SIDS)
- chronic obstructive pulmonary disease (COPD)



Difference of Fuel Consumption Between Heavy Duty Trucks and Freight Trains

- Trucks are much less fuel-efficient than trains. A freight train can travel 377 ton-miles, while a heavy-duty truck can travel only 80 ton-miles, on one gallon of fuel.
- Even though a train on average puts out about 3 times more pollution per mile than a truck, it would typically carry as much freight as 200-400 trucks.



Sources: FHWA's *Highway Statistics* and the Association of American Railroads' *Rail Facts*, both as reported by the Bureau of Transportation Statistics

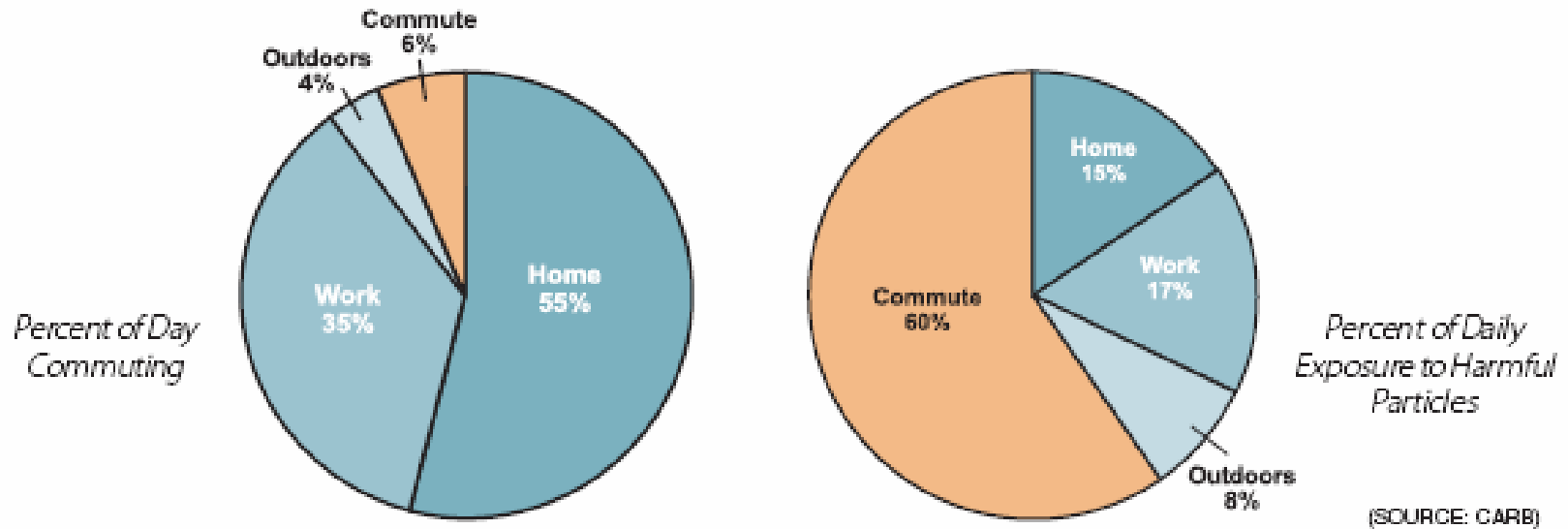
The Clean Air Task Force Recently Ranked Counties In Order of Adverse Health Impacts from Diesel Soot. The higher the ranking means the unhealthier the air is to breathe in the county.

Brazoria County ranked 10th out of 254 counties in Texas and 207th out of 3,109 counties nationally. The Clean Air Task Force ranks Brazoria in the top 93% of unhealthiest counties in the United States, with 100% being the unhealthiest.

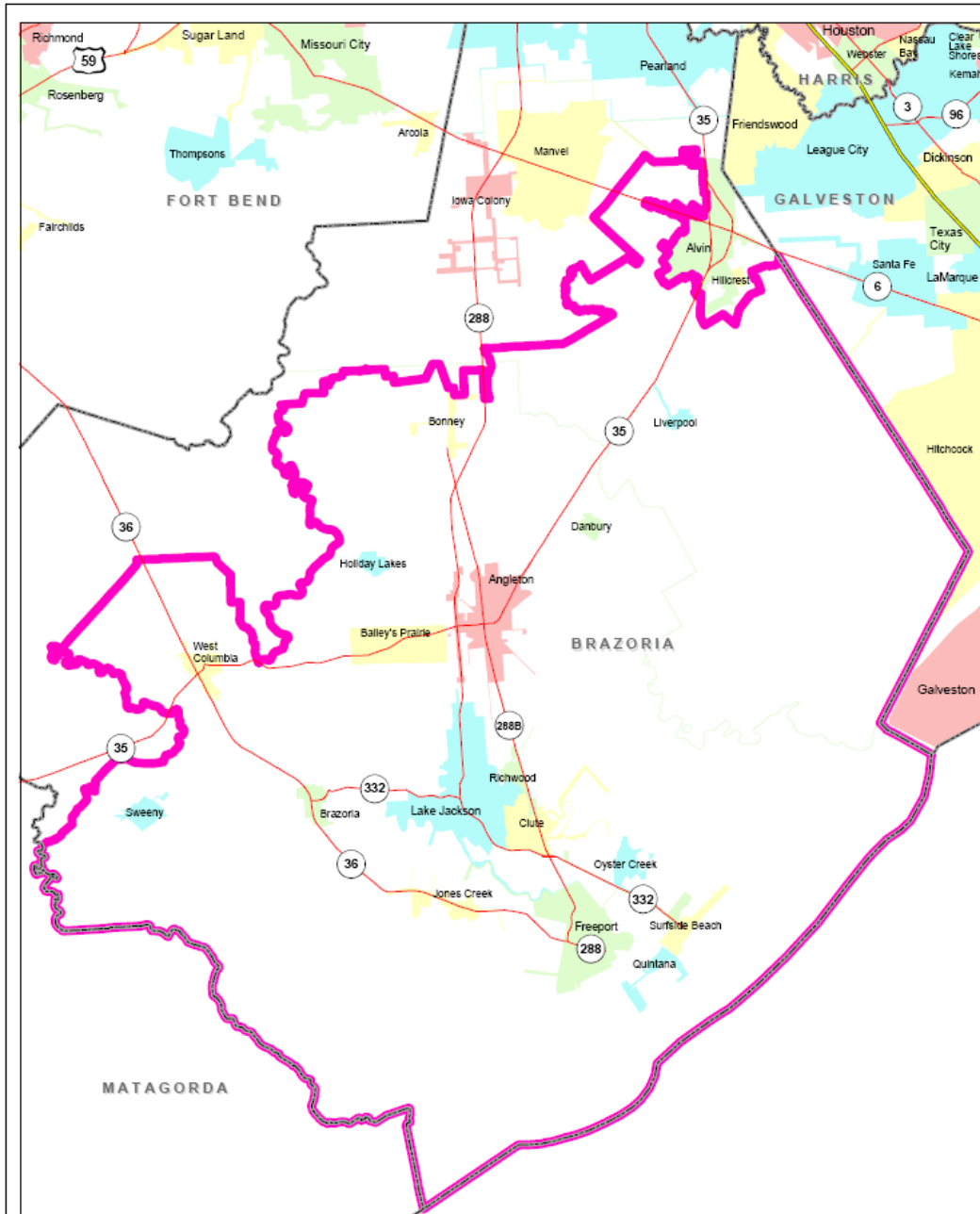
DPM Risk Rank out of 254 TX counties	DPM Risk Rank out of 3,109 U.S. counties	County	Times Above EPA's Acceptable Cancer Level
1	14	Jefferson	865 X
2	17	Harris	742 X
5	102	Dallas	398 X
10	207	Brazoria	316 X
12	249	Travis	299 X
16	431	Bexar	257 X

Brazoria County is relatively rural compared to many other counties in the U.S., yet it is one of the unhealthiest.

Our Daily Commute: Over Half of Our Exposure to Diesel Particles



In conclusion, no matter how you get to work or school – there is no escape from diesel exhaust!



- Legend**
- Interstates
 - Highways
 - Counties
 - Districts
 - Cities

House District 25

Sources of Diesel Exhaust



- **Port Freeport**
- **Refining and Petrochemical Industry**
 - **Trucks going in & out, idling while loading and unloading**
 - **Ships going in & out**
 - **Freight trains going in & out**
- **Construction & Growth on HWY 36**
- **Idling at truck stops**

We have to ask: how can we
reduce exposure to diesel
exhaust?

Two Solutions Work in Conjunction to Reduce DPM: Ultra-Low Sulfur Diesel & Diesel Particulate Filters

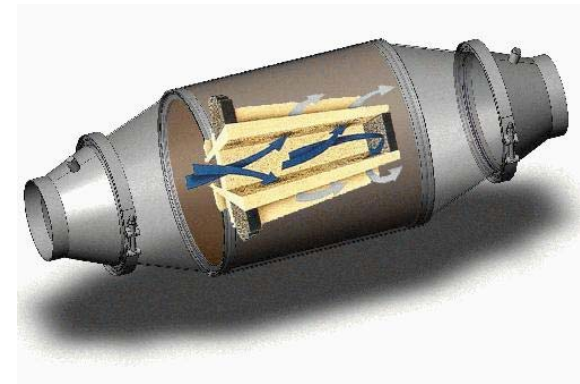
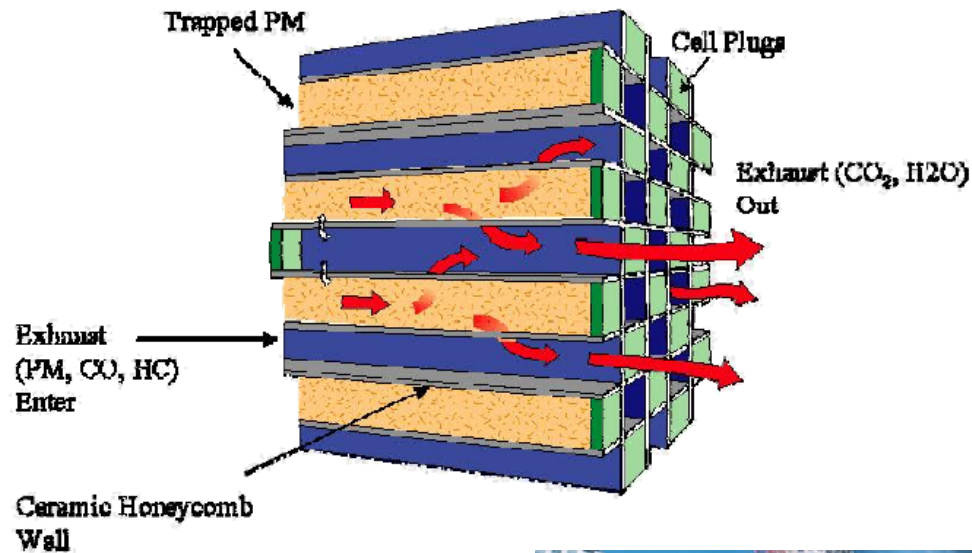
What is Ultra-Low Sulfur Diesel (ULSD)?

- October 15, 2006
- The allowable sulfur content for ULSD, 15 ppm, is considerably lower than the previous U.S. on-highway standard for Low Sulfur Diesel (LSD) of 500 ppm.

What is a Diesel Particulate Filter (DPF)?

- physical filtration to remove DPM from the exhaust stream before the soot is expelled into the air
- total efficiency for a DPF is up to 90%
- ceramic honeycomb monolith that has channels blocked at alternate ends

Diesel Particulate Filters (DPF)



Idle Reduction Techniques

- Long Haul Truck Drivers must have 10 hrs off duty after driving 11 hours
- Traditional Idling consumes almost 1 billion gallons of fuel annually and emits an estimated 11 million tons of CO₂, 180,000 tons of NO_x, and 5,000 tons of PM
- The Congestion Mitigation and Air Quality (CMAQ) Improvement Program provides a funding source for state and local governments to fund transportation projects and to help meet the requirements of the Clean Air Act for non-attainment areas.
- Brazoria County qualifies for these funds

Truck Stop Electrification (TSE)

Truck Idle Reduction Technologies

- Direct fired heaters
- Auxiliary power units
- Automatic engine idling systems
- Truck (TSE) and Advanced Truck Stop Electrification (ATSE)







IdleAire
IN-CAB SERVICES

MONITORS
CB3

BASIC SERVICES

- ▶ *Filtered Heat and A/C*
- ▶ *120V Electric Outlets: Inside & Out*
- ▶ *Television Service*
- ▶ *Telephone Line*
- ▶ *Built-In Touchscreen Computer with Internet Access*

ADDITIONAL SERVICES

- ▶ *Touchscreen Games*
- ▶ *Hit Movies On Demand - New Releases & More!*
- ▶ *High-Speed Internet*
- ▶ *Wired Ethernet: Computer & Game Consoles*
- ▶ *Wireless: Computer*



Idle Air CARD CENTER
LOAD CASH to your Idle Air Card

INSTRUCTIONS

Cash Load

STEP 1
Swipe Card

STEP 2
Insert Money

STEP 3
View New Balance on Screen
Insert and flip the new balance to return

STEP 4
Press Buttons to Complete Transaction and get Receipt

View Balance

STEP 1
Swipe Card

STEP 2
View Your Balance on Screen

STEP 3
Press Button to Clear Transaction History and read account

QUESTIONS

For Questions, call Customer Support from an Idle Air Cab Phone or *411 or from any phone call 877-730-7024.

Refunds are not available on-site.

Machine will not dispense money or provide change.

Time shown on the Display and Receipt is Eastern Standard Time.

THIS IS NOT AN ATM MACHINE

IN-CAB SERVICES

Basic Services

- ▶ Filtered Heat and A/C
- ▶ 120V Electric Outlets: Inside & Out
- ▶ Built-In Touchscreen Computer with Internet Access
- ▶ Television Service
- ▶ Telephone Line

Additional Services

- ▶ High-Speed Internet
- ▶ Hit Movies On Demand
- ▶ Wired Ethernet: Computer & Game Consoles
- ▶ New Release, Action, Sci-Fi & More...
- ▶ Wireless: Computers
- ▶ Touchscreen Games

FOR MORE INFO PICK UP A FREE COPY OF THE GUIDE





Screen On-Off

Tamper Monitor On

Check In

Please Swipe Your Member Card

Become a Member
Enter Your Information Once
Save Time On Every Visit
Future Services Email, Incoming Phone Calls...

Or Swipe a Payment Card

When at Member you can
Pay at the Air or the car
I want information
We Accept Visa, MC, AmEx
and More Payment

Menu Thermostat Web Help Check Out

Messaging Shopping

Or Call Toll Free 1-877-738-7024

Circuit A

Circuit B