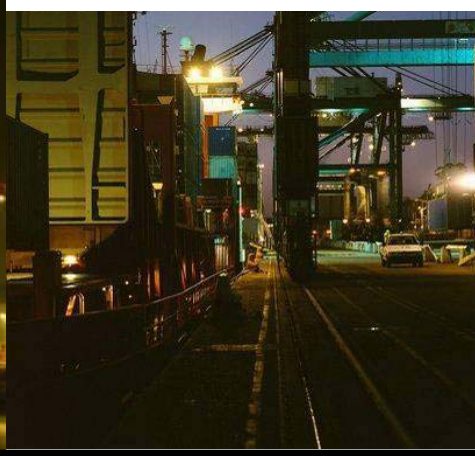


# Toxic Pollution from Diesel Sources in the Dallas-Forth Worth Area



# Points of Discussion

- Background Information on the characteristics & sources of Diesel
- Adverse Health Effects
- Presence of Diesel Engines in the Dallas-Forth Worth Area
- Solutions to Reduce 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

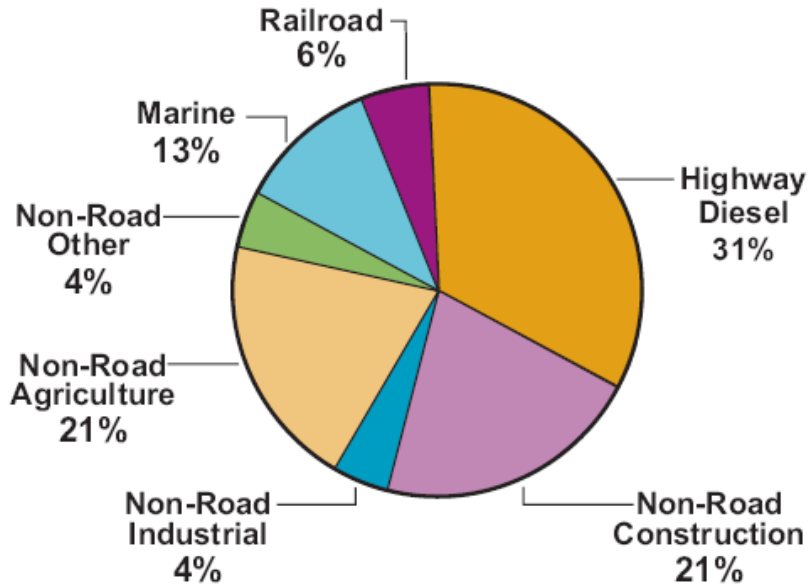
## **Off-Road Diesel Engines**

- 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

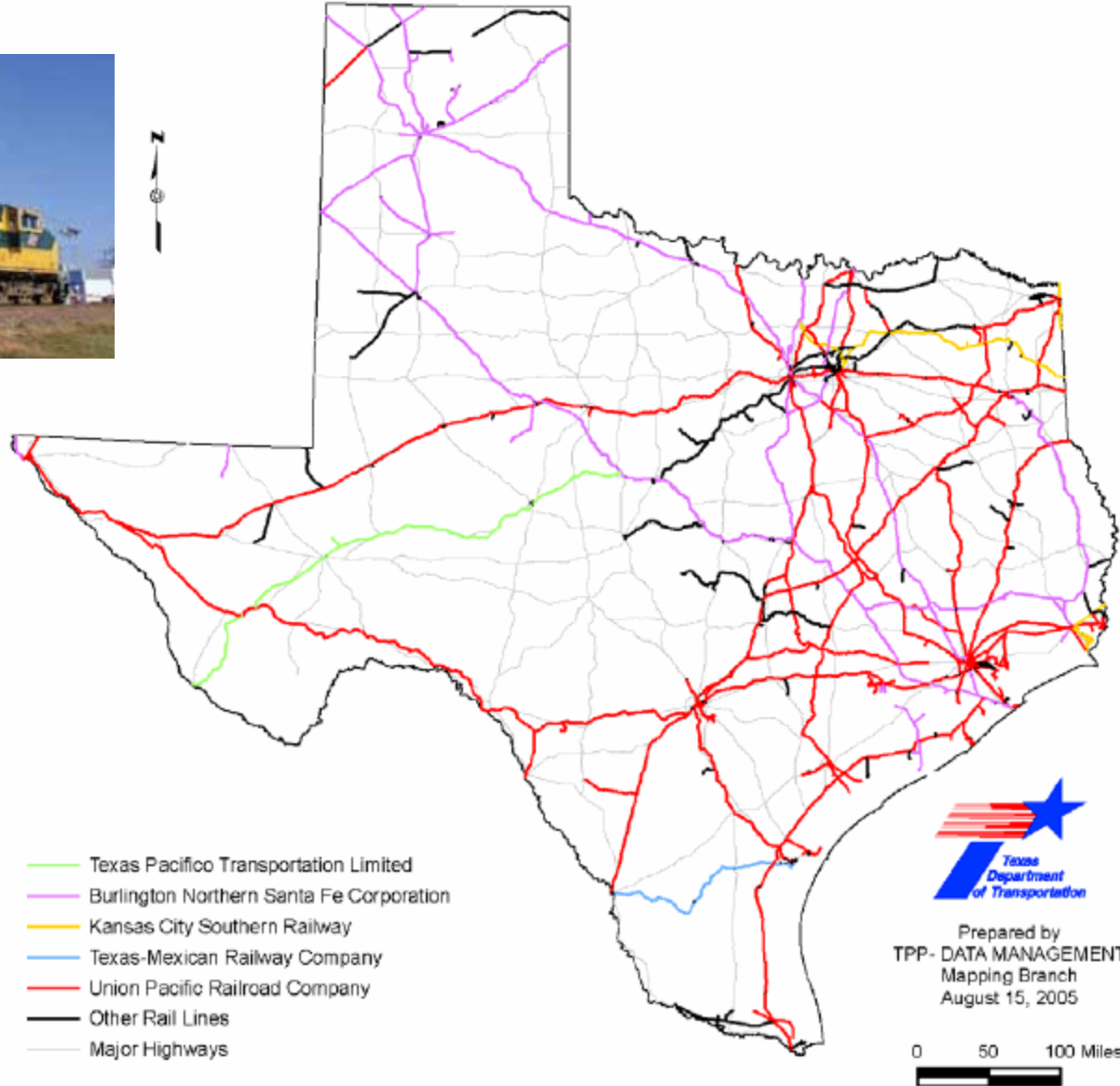
# Sources of Diesel Exhaust



- **Traffic to & from Cement Kilns and Electric Generating Units**
  - Trucks going in & out, idling while loading and unloading
  - Freight trains going in & out
- **Construction & Growth on Interstates and Highways**
- **Farming Equipment**
- **Idling at truck stops**



# Texas Rail Lines





# There is No Escape From Diesel Exhaust

## Referred to as Toxic Soup

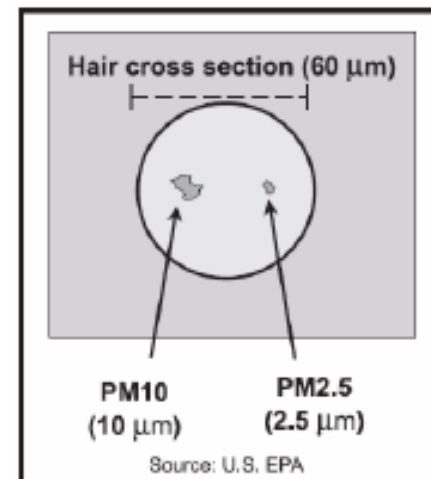
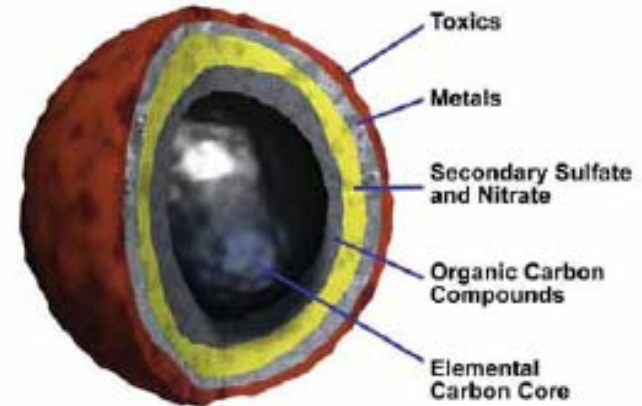
- Contains over 40 toxic air contaminants, some of which are carcinogenic: benzene, arsenic & formaldehyde
- Diesel particulate matter (DPM) is the most deadly component of diesel exhaust.
  - DPM is primarily emitted at ground level in densely populated areas.



Problem: We 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)



# The Clean Air Task Force

<http://www.catf.us/projects/diesel>

## How TX Counties Rank Statewide & Nationally in Health Impacts from Diesel Fine Particles in 1999

| DPM Risk Rank out of 254 TX counties | DPM Risk Rank out of 3,109 U.S. counties | County    | Deaths | Non-Fatal Heart Attacks | Asthma Attacks | Chronic Bronchitis | Work Loss Days | Times Above EPA's Acceptable Cancer Level |
|--------------------------------------|--|-----------|--------|-------------------------|----------------|--------------------|----------------|---|
| 1                                    | 14                                       | Jefferson | 59     | 58                      | 1,029          | 29                 | 5,863          | 865 X                                     |
| 2                                    | 17                                       | Harris    | 295    | 368                     | 9,791          | 250                | 57,645         | 742 X                                     |
| 5                                    | 102                                      | Dallas    | 106    | 130                     | 3,263          | 85                 | 19,550         | 398 X                                     |
| 8                                    | 194                                      | Tarrant   | 58     | 69                      | 1,661          | 44                 | 9,866          | 323 X                                     |
| 12                                   | 249                                      | Travis    | 22     | 32                      | 868            | 23                 | 5,620          | 299 X                                     |
| 16                                   | 431                                      | Bexar     | 50     | 62                      | 1,313          | 35                 | 7,467          | 257 X                                     |

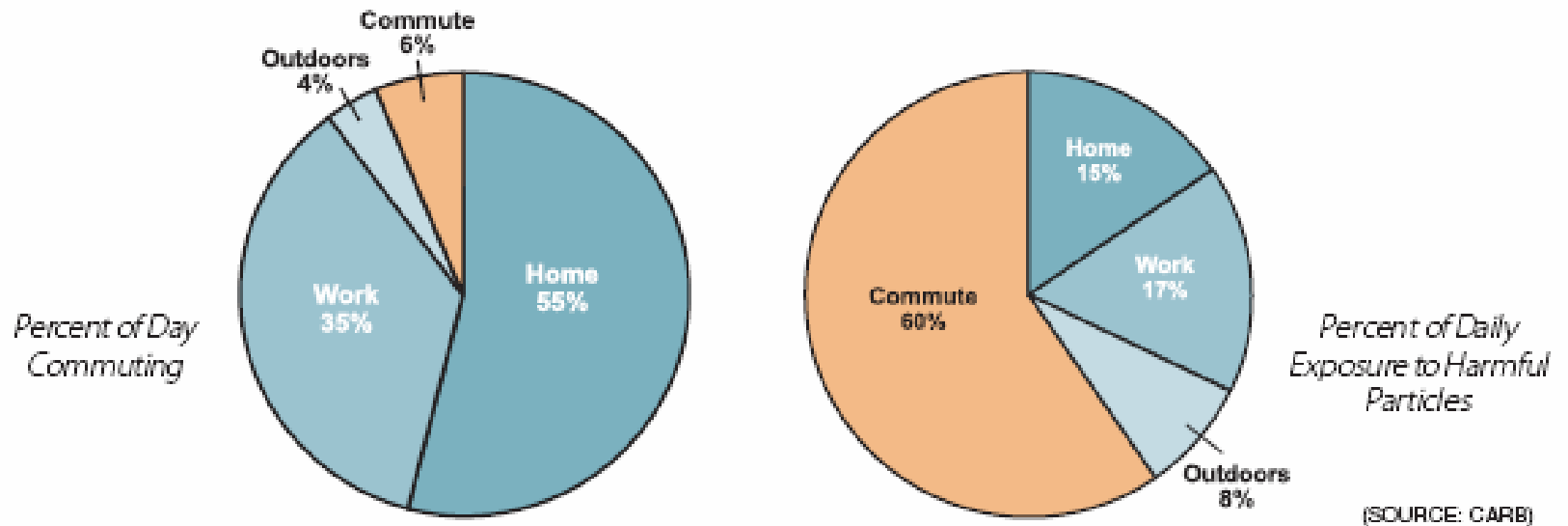
Higher Ranking = Unhealthier Air

**Tarrant County ranked 8th out of 254 counties in Texas and 194th out of 3,109 counties nationally. With 100% being one of the unhealthiest county in the United States, Tarrant County is 93%.**

**Dallas County is unhealthier than Tarrant County at 97%.**

**Ellis County, 22<sup>nd</sup> in the state and 779<sup>th</sup> nationally, is healthier than both at 75%.**

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

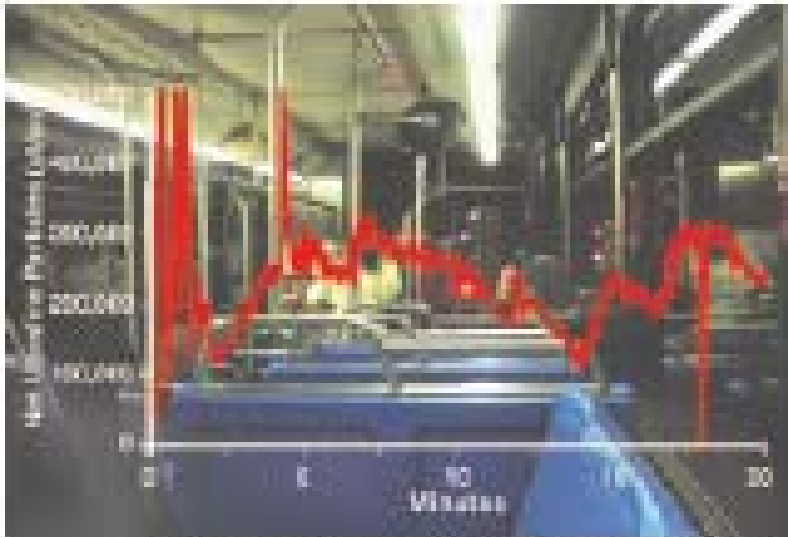


**No matter how you get to work or school – there is no escape from diesel exhaust.**

How can we reduce this exposure to diesel exhaust?

# Comparison of Ultrafine Particles on Transit Buses

Left – No DPF  
Right – DPF



*CATF researchers measured high ultrafine particle levels on a conventional transit bus in Boston (left), while levels on a bus retrofitted with a particle filter were barely detectable (right).*

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

## What is Ultra-Low Sulfur Diesel (ULSD)?

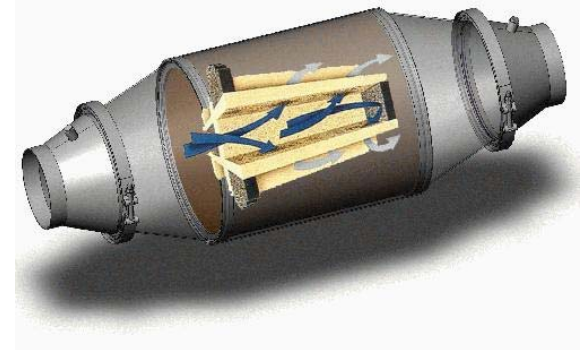
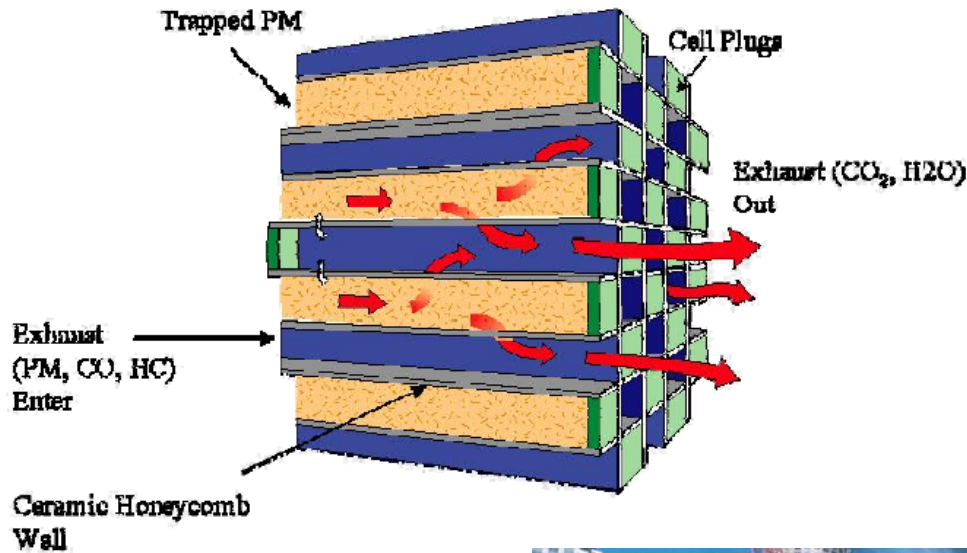
- October 15, 2006
- The allowable sulfur content for ULSD = 15 ppm
- Compared to previous U.S. on-highway standard of 500 ppm for Low Sulfur Diesel (LSD).

## 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%
- **Retrofitting trucks, buses and construction equipment is the best way to reduce emissions from the millions of diesel engines that will stay on the road for many years to come.**

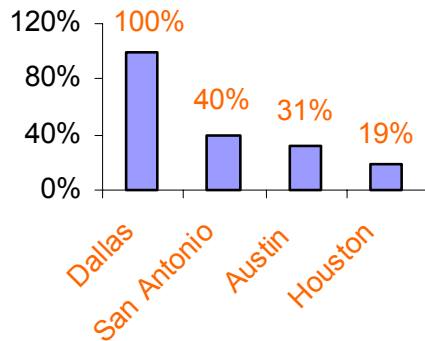


# Diesel Particulate Filters (DPF)



# Public Transit

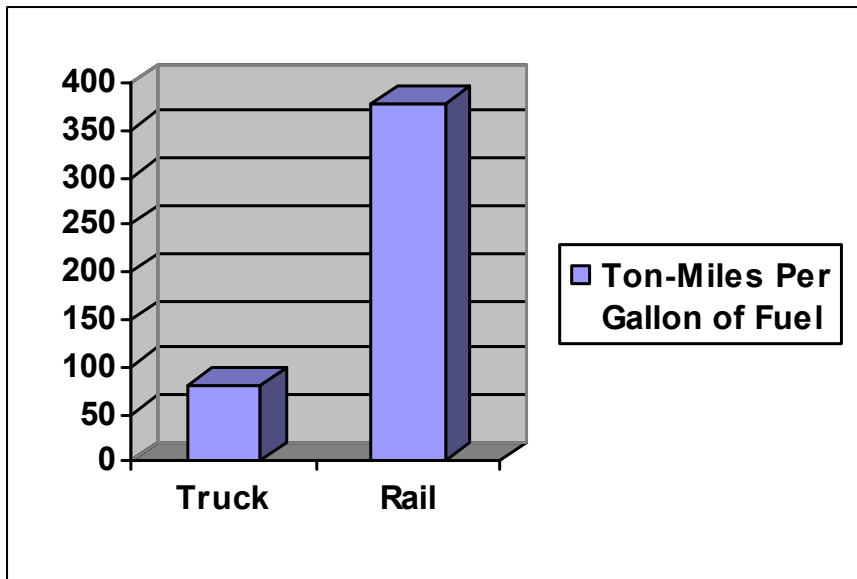
- **Arlington is the largest city in the nation without mass public transit.**
  - Neighbors in Dallas are setting a good example
- Dallas Bus Fleets are the Cleanest in TX, 2007
  - The American Lung Association Ranked the largest 33 U.S. Cities in Order of Cleanest Bus Technology
    - ULSD fuel with particulate traps
    - Gaseous fuels – propane or natural gas
    - Battery or trolley wire powered electric buses



Diesel Electric Hybrid Bus

# 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

# 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 CO<sub>2</sub>, 180,000 tons of NO<sub>x</sub>, 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.
- The DFW-area qualifies for these funds
- Advanced Truck Stop Electrification





**WELCOME** Aire  
This is a Quiet Zone  
CB3 is Monitored  
Nose In Parking  
NO IDLING  
ALL RULES ARE STRICTLY ENFORCED  
CLEARANCE 14'6"

**A**

**MS**  
of Wisconsin Ltd.



**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  
Tap Card

STEP 2  
Insert Money

STEP 3  
View New Balance on Screen  
*Please wait for new balance to appear.*

STEP 4  
Press Button to Complete Transaction and get Receipt

**View Balance**

STEP 1  
Swipe Card

STEP 2  
View Your Balance on Screen

STEP 3  
Press Button to Check Your Data  
*Receipt will not print.*

**QUESTIONS**

For Questions, call Customer Support from an Idle Air Cab Phone or \*411, or from any phone call 877-750-7024.

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
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- ▶ Built-In Touchscreen Computer with Internet Access
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- ▶ 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



**Idle Air**

Idle Air  
4600  
Mt. V...

**No**



Screen On-Off

Tamper Monitor On

Check In

Please Swipe Your Member Card

Account & Member  
 Times Your Reservation Once  
 Save Data On Every Visit  
 Future Services: Email, Invoicing, Please Call...

Or Swipe a Payment Card

Account & Member  
 Times Your Reservation Once  
 Save Data On Every Visit  
 Future Services: Email, Invoicing, Please Call...

Menu

Thermostat

Web

Help

Check Out

Messaging

Shopping



Or Call Toll Free 1-877-738-7024

Circuit A

Circuit B

# North Central Texas Council of Government

<http://www.nctcog.dst.tx.us/>

## Air Quality Programs & Strategies

- North Texas Emissions Reduction Grant Program for Texas Emissions Reduction Program (TERP) funds
- Clean Fleet Vehicle Procurement Policy
- North Central Texas Clean School Bus Program
- Diesel Freight Vehicle Idling Reduction Program
- Information on Pending Legislation