



# **LOCALLY ENFORCED IDLING RESTRICTIONS**

**Texas Public Works Association**

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**North Central Texas Council of Governments**



# LOCALLY ENFORCED IDLING RESTRICTIONS

## Overview

- **Background**
- **Benefits**
- **Idling Restrictions In The U.S. & Texas**
- **Texas Idling Rule**
- **Local Government Implementation**
- **Technology Options**
- **Incentives & Funding Opportunities**
- **Resources**

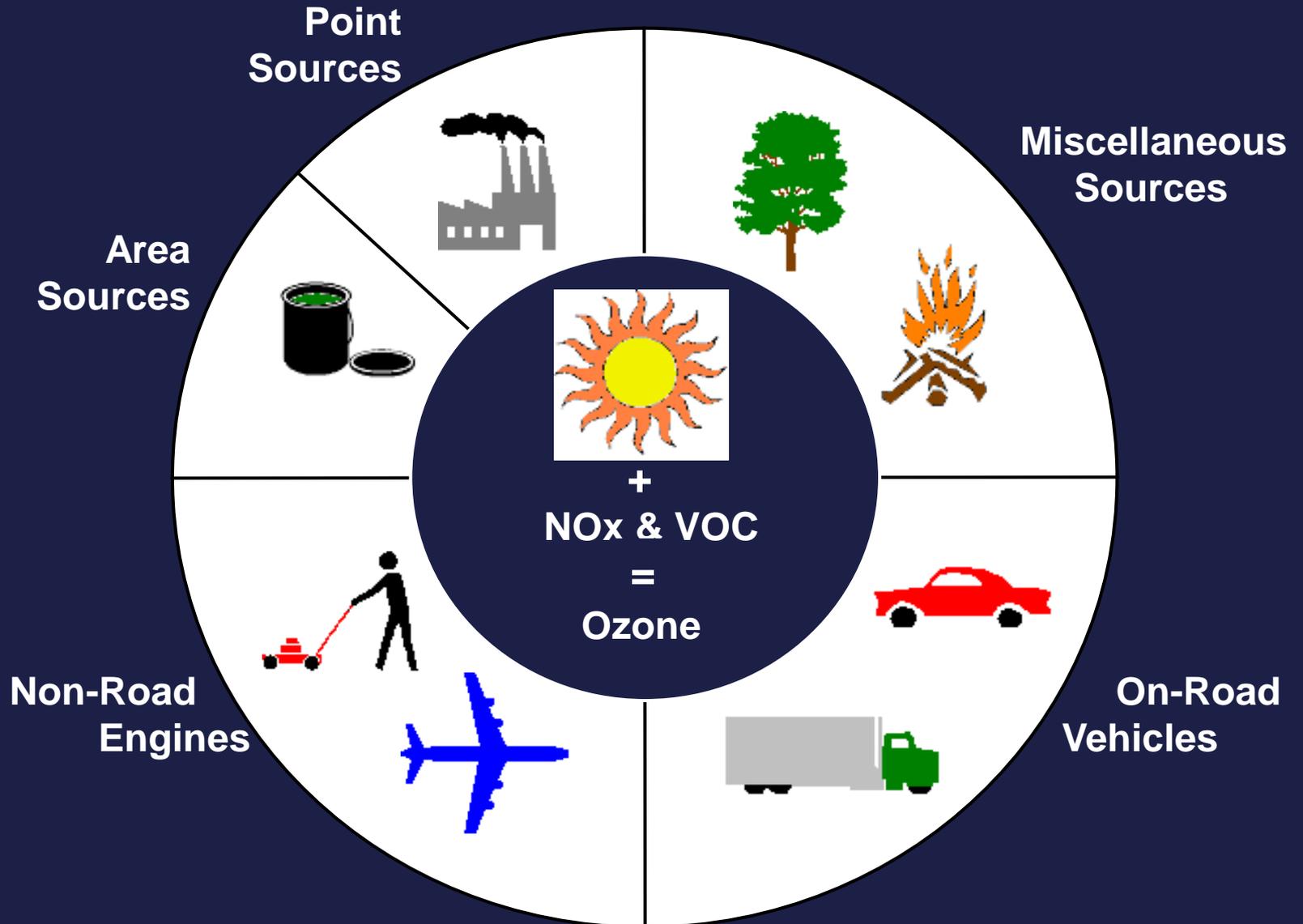


# Background



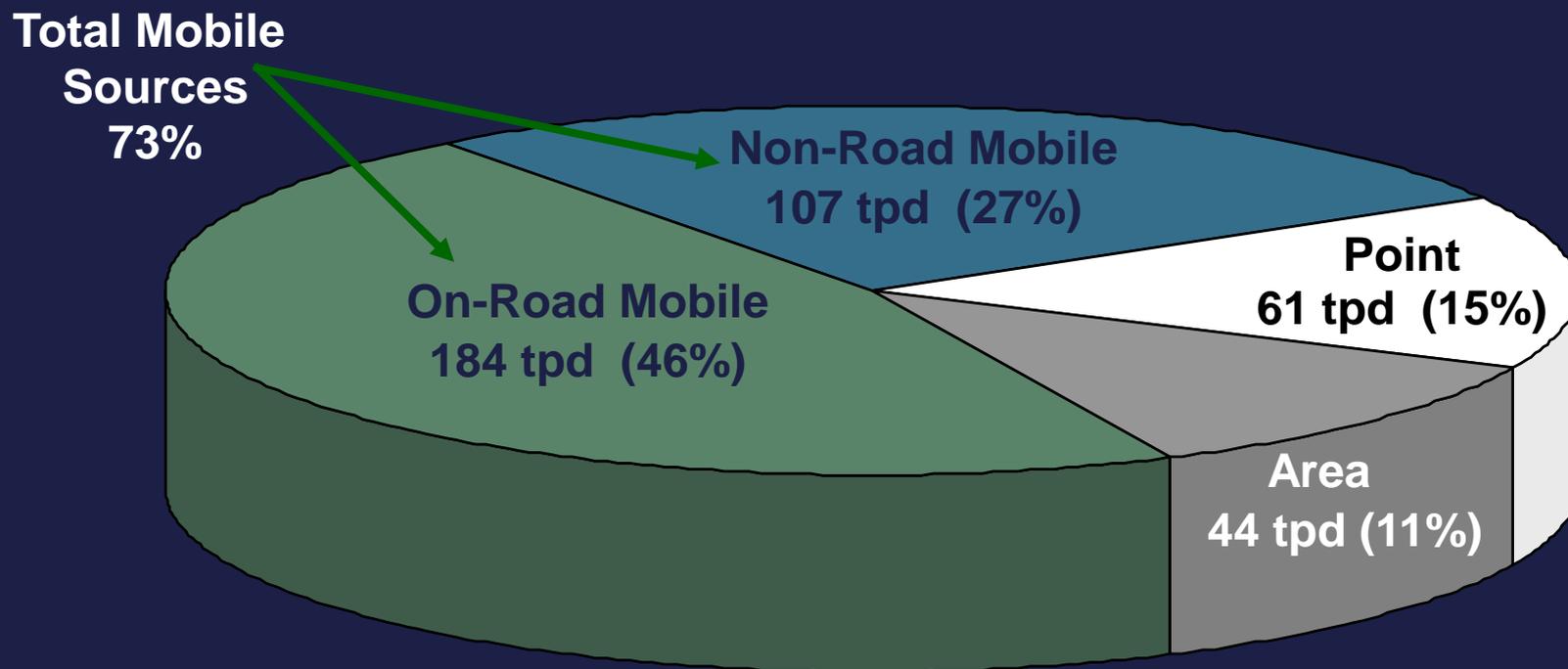
# STATE OF AIR QUALITY IN NORTH TEXAS

## Ozone Formation



# DALLAS-FORT WORTH NONATTAINMENT AREA 2009 Nitrogen Oxide (NO<sub>x</sub>) Emissions Inventory

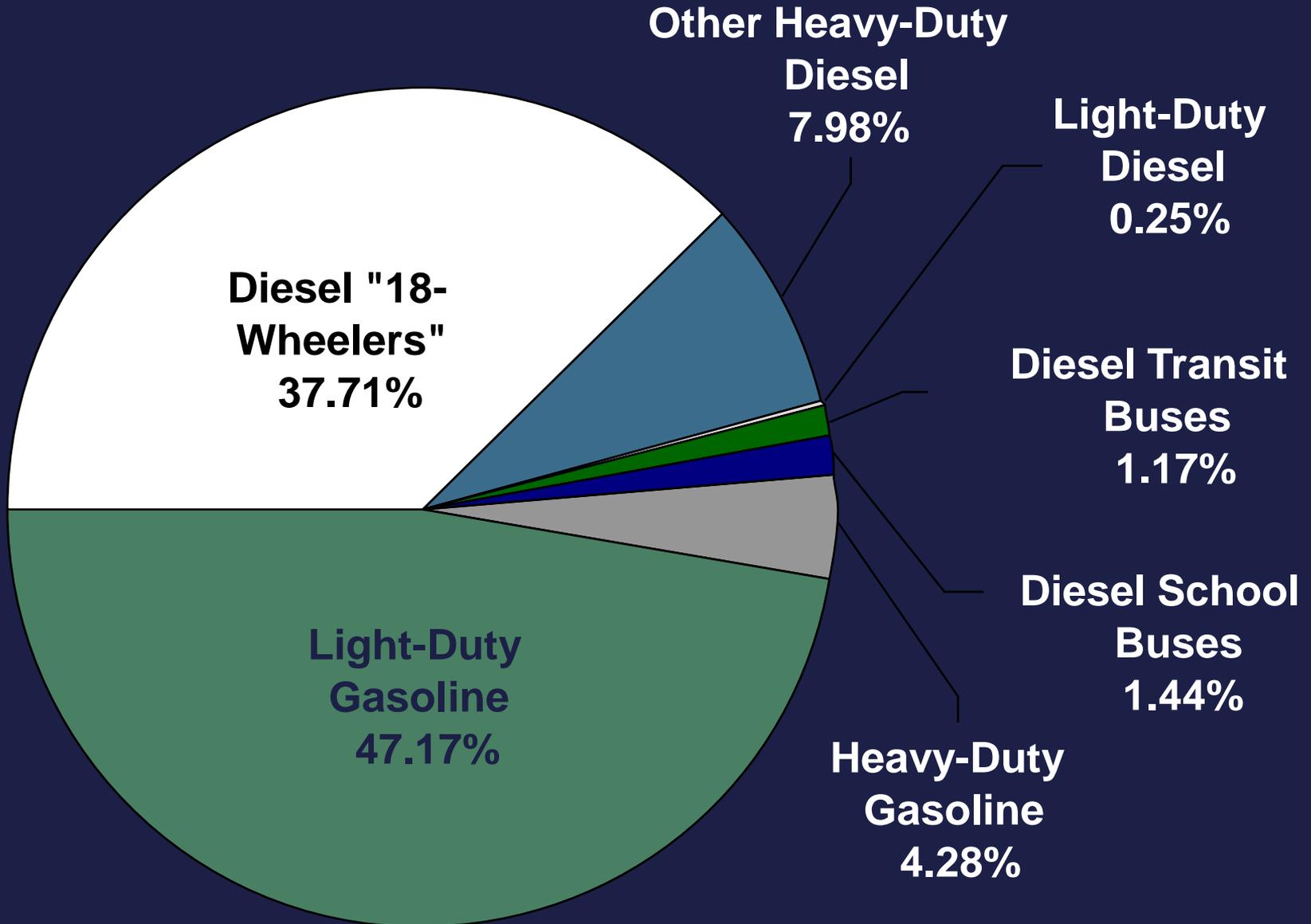
## Emission Source Category Estimates



**Total NO<sub>x</sub> = 396 Tons Per Day (tpd)**

# DALLAS-FORT WORTH NONATTAINMENT AREA

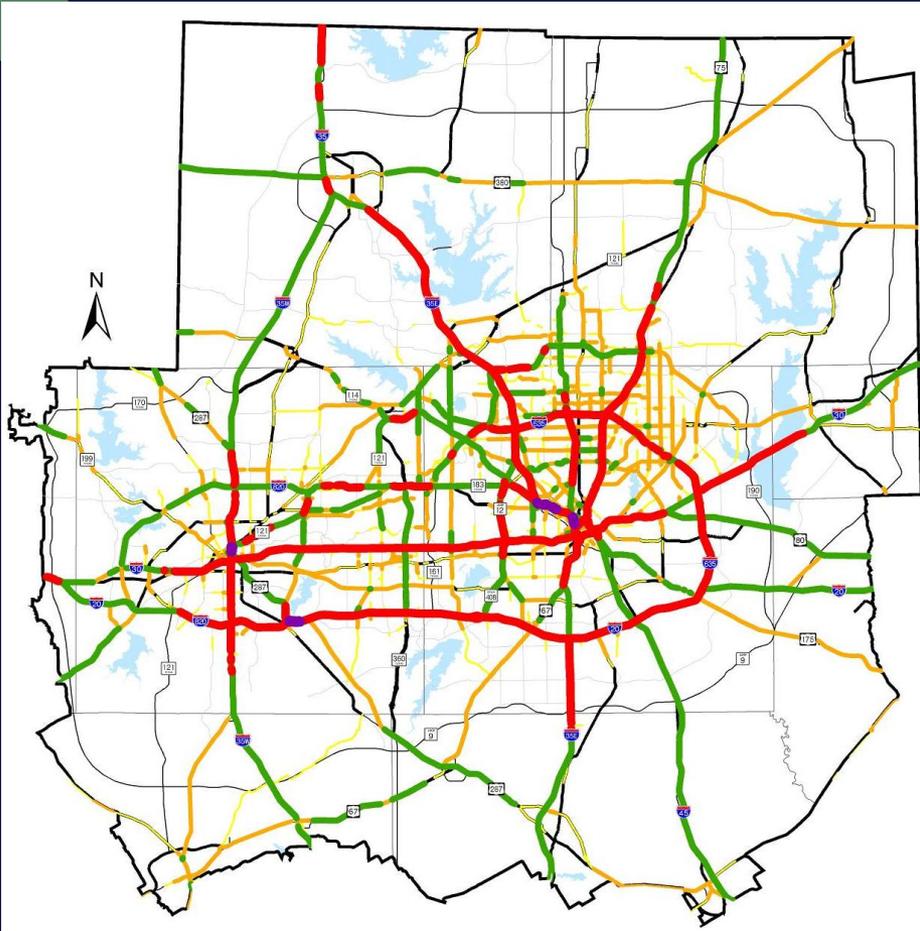
## 2009 On-Road NO<sub>x</sub> Emissions Inventory



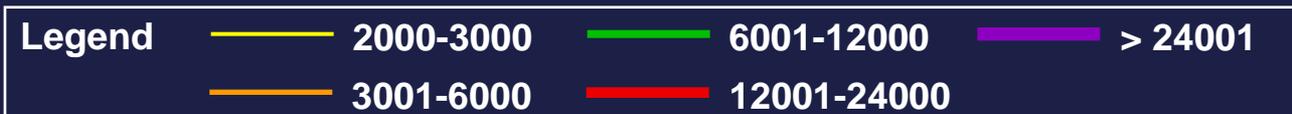
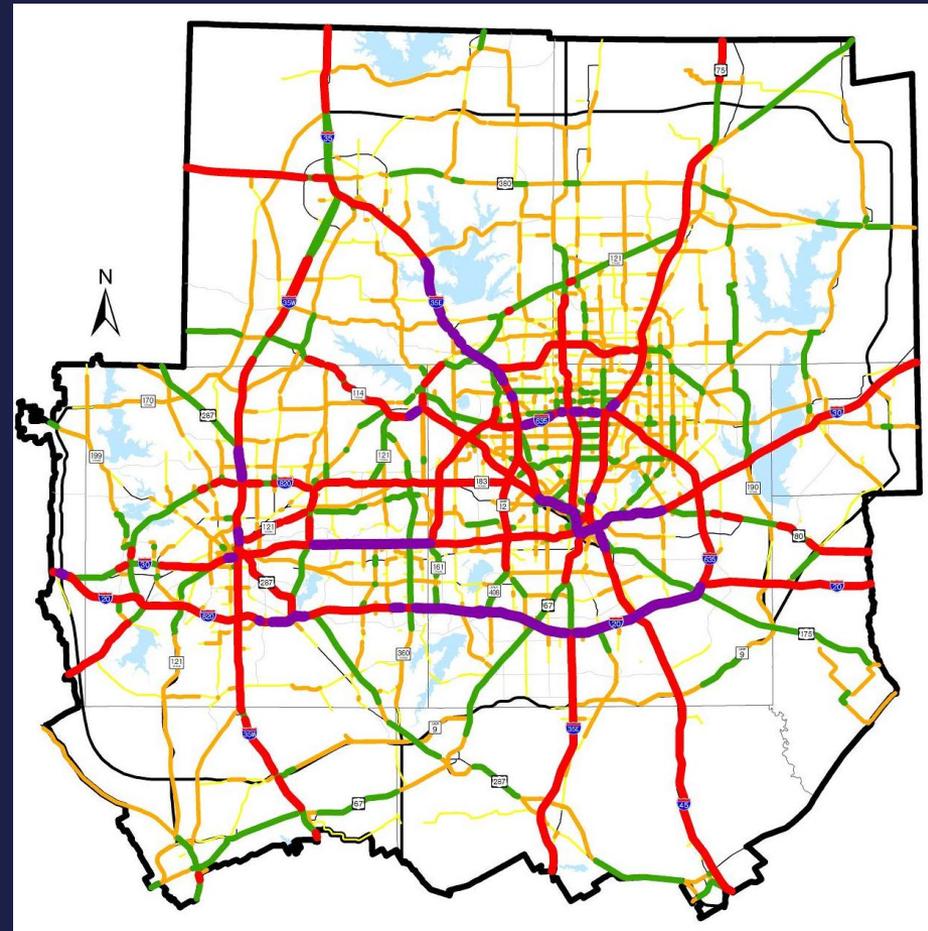
# REGIONAL TRUCK VOLUMES

## Dallas-Fort Worth Nonattainment Area

### 2005 Truck Volumes



### 2030 Truck Volumes



# 8-HOUR OZONE STATE IMPLEMENTATION PLAN

## Dallas-Fort Worth Nonattainment Area

### NORTH CENTRAL TEXAS STATE IMPLEMENTATION PLAN VOLUNTARY MOBILE EMISSION REDUCTION PROGRAM (VMEP) EMISSION BENEFITS BY PROGRAM TYPE

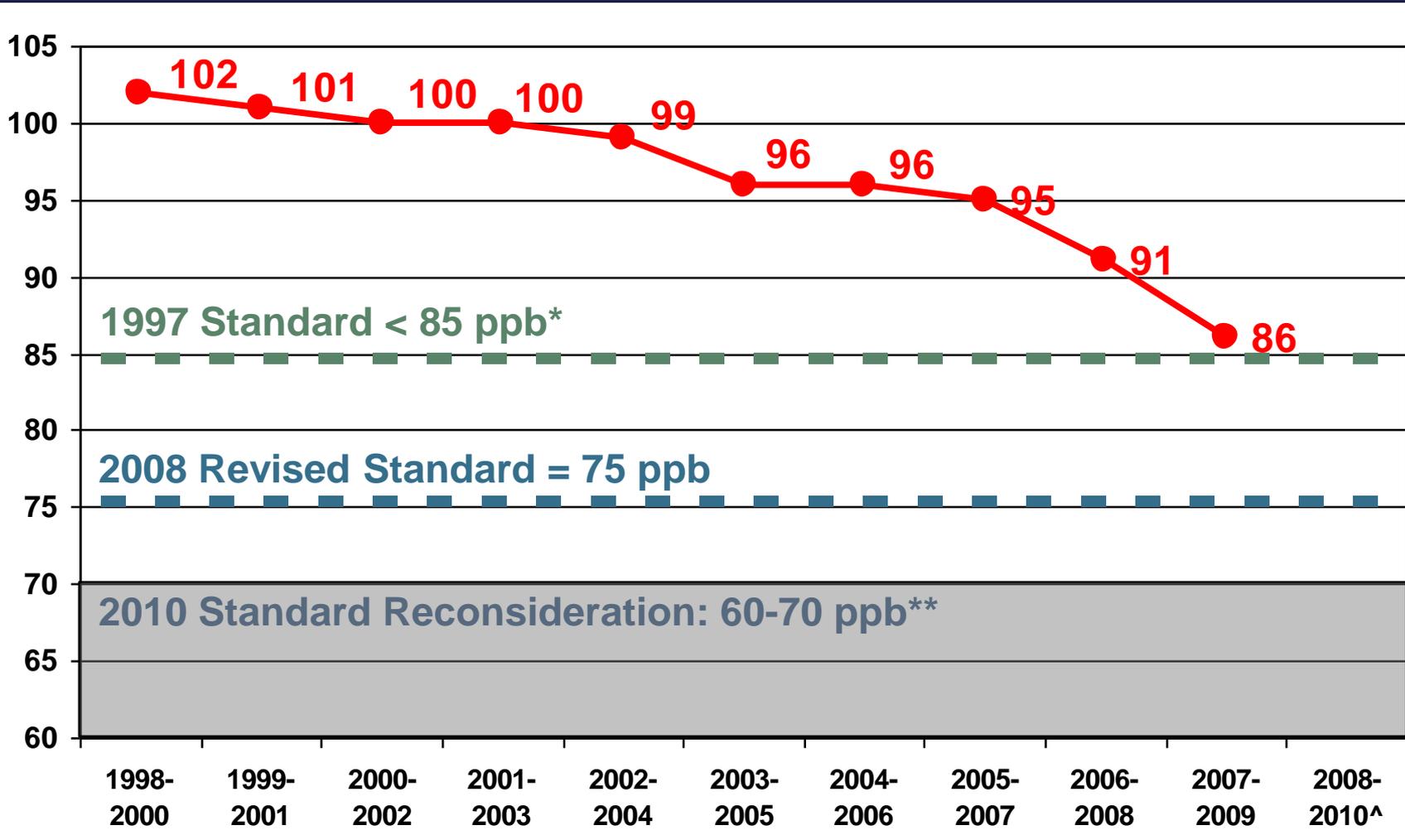
PROGRAM TYPE	2009 NO <sub>x</sub> BENEFITS (tons per day)		2009 VOC BENEFITS (tons per day)	
	Modeled	Post-Processed	Modeled	Post-Processed
Clean Vehicle Program	0.00	0.24	0.00	0.05
Employee Trip Reduction	0.43	0.00	0.28	0.00
Locally Enforced Idling Restriction	0.00	0.62	0.00	0.02
Diesel Freight Idling Reduction Program	0.00	0.33	0.00	0.01
SmartWay Transport Demonstration Project	0.00	0.00	0.00	0.00
Public Agency Policy for Construction Equipment	0.00	0.06	0.00	0.01
Aviation Efficiencies	0.00	0.95	0.00	0.24
<b>TOTAL BENEFITS (tons per day)</b>	<b>0.43</b>	<b>2.20</b>	<b>0.28</b>	<b>0.33</b>

(1) NO<sub>x</sub> = Nitrogen Oxides, VOC = Volatile Organic Compounds

# 8-HOUR OZONE STANDARD HISTORICAL TRENDS

## Dallas-Fort Worth Nonattainment Area

Highest Average  
at any Given Monitor (ppb)



Consecutive 3-Year Periods

\* 2010 Attainment Goal - According to the US EPA National Ambient Air Quality Standards, attainment is reached when, at each monitor, the three-year average of the annual fourth-highest daily maximum 8-hour average ozone concentration is less than 85 parts per billion (ppb).

\*\* Primary Ozone Standard is currently under reconsideration by the EPA and will likely be revised in August 2010 to between 60 and 70 ppb.

^ Not a full year of data for 2010

Source: NCTCOG TR Dept



# Benefits



# **IDLING RESTRICTIONS**

## **Why They Are Important**

**Idling Emissions Contribute to Air Pollution, Which Can Cause Adverse Health Effects**

**In Addition, the U.S. EPA Estimates that Excess Idling is Responsible For:**

- **Over 1 Billion Gallons of Diesel Fuel Consumed Annually**
  - **11 Million Tons of Carbon Dioxide, 200,000 Tons of Nitrogen Oxides, and 5,000 Tons of Particulate Matter Emitted Annually**
  - **Increased Engine Maintenance Costs**
  - **20% Decrease in Engine Life**
  - **Elevated Noise Levels**
- 

# IDLING RESTRICTIONS

## What is Diesel Exhaust?

### Gaseous Components of Diesel Exhaust:

Carbon Dioxide (CO<sub>2</sub>)

Oxygen (O<sub>2</sub>)

Nitrogen (N<sub>2</sub>)

Water Vapor (H<sub>2</sub>O)

Carbon Monoxide (CO)

Nitrogen Compounds (NO<sub>x</sub>)

Sulfur Compounds (SO<sub>x</sub>)

Low-Molecular-Weight Hydrocarbons (HC)

Particulate Matter (PM)

**1 Gallon Diesel Burned = 22.2 lbs CO<sub>2</sub> Emitted**

# IDLING RESTRICTIONS

## What Makes Diesel Exhaust So Dangerous?

**Pollutants in Diesel Lead to the Formation of Ozone Which Contributes to Smog**

**Prolonged Exposure to Ozone Can Lead to Adverse Health Effects including:**

**Irritation of the Airways**

**Reduced Lung Function**

**Coughing**

**Irritation of the Throat and Chest**

**Inability to Breathe as Vigorously as Normal**

**Diesel Exhaust Also Contains Particulate Matter and Many Air Toxins Which Are Harmful to Human Health**

# IDLING RESTRICTIONS

Savings \$\$\$

Unnecessary Idling Wastes Money and Resources

EXAMPLE)

Idling = 7 hours/day \* 5 days/week \* 50 weeks/year  
= 1,750 hours idling/year

Idling = 1 gallon diesel/hour \* \$3.00-4.00/gallon diesel  
= \$5,250-\$7,000/year

Engine Manufacturers, including Cummins, state that Excessive Idling should be avoided when possible as it results in:

- Reduced Fuel Economy
- Increased Engine Wear
- Excessive Carbon Buildup on Pistons, Piston Rings, Injector Tips, Valves, Etc.
- Increased Frequency of Maintenance and Repairs such as Oil Changes and Replacement of Belts/Hoses

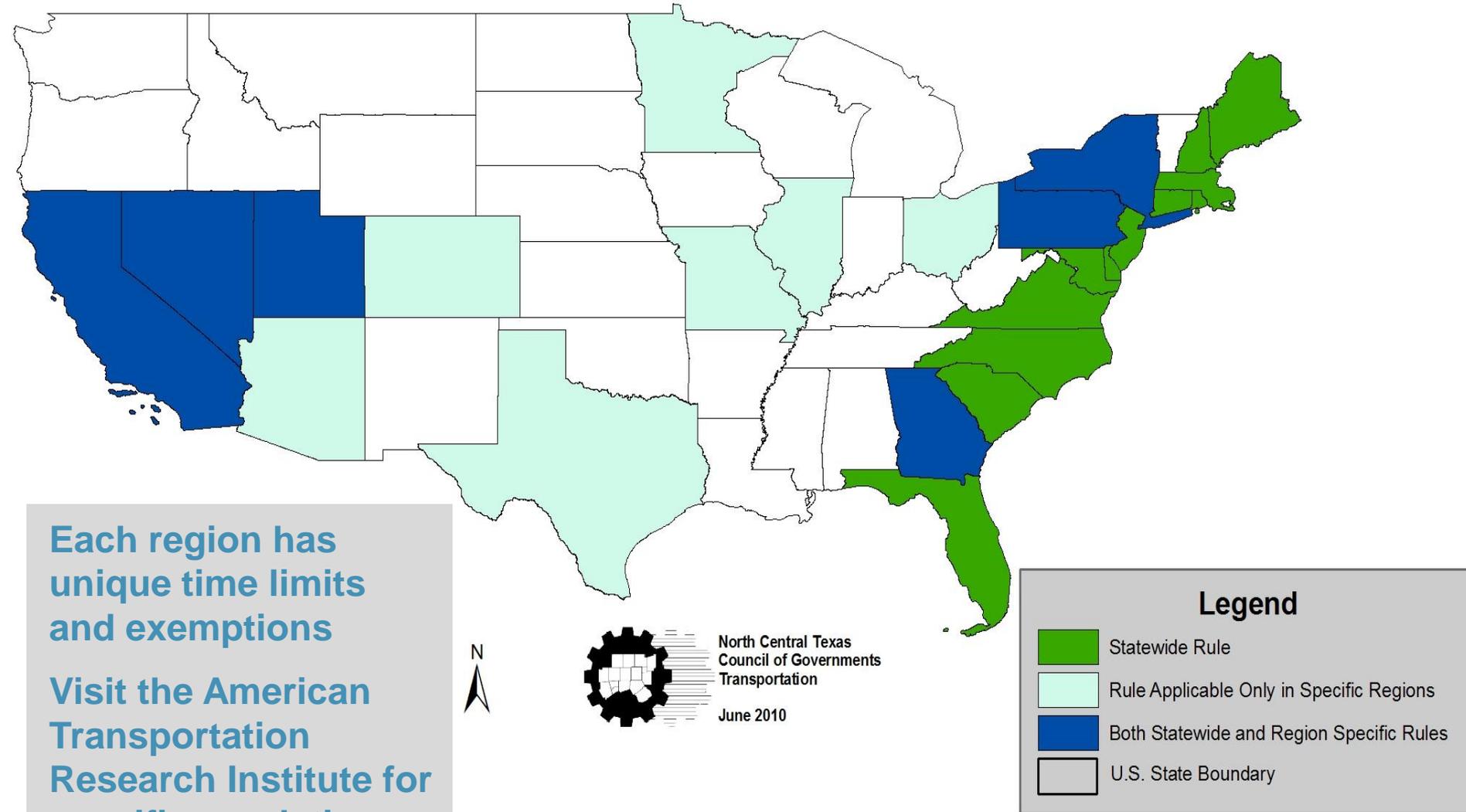


# Idling Restrictions In The U.S. & Texas



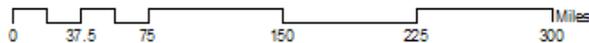
# U.S. IDLING RESTRICTIONS

## Statewide vs. Region Specific Rules



# TEXAS IDLING RESTRICTIONS RULE

## Regions Actively Pursuing Adoption and Enforcement



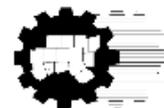
**DFW Area\***

**Austin Area (Adoptees)\***

- City of Austin
- City of Bastrop
- City of Georgetown
- City of Hutto
- City of Lockhart
- City of Luling
- City of Round Rock
- City of San Marcos
- Bastrop County
- Caldwell County
- Hays County
- Travis County
- Williamson County

### Legend

- Texas Counties
- Area Actively Pursuing Idling Restrictions
- Ozone Nonattainment Counties
- Ozone Early Action Compact (EAC) Counties



North Central Texas  
Council of Governments  
Transportation  
October 2008

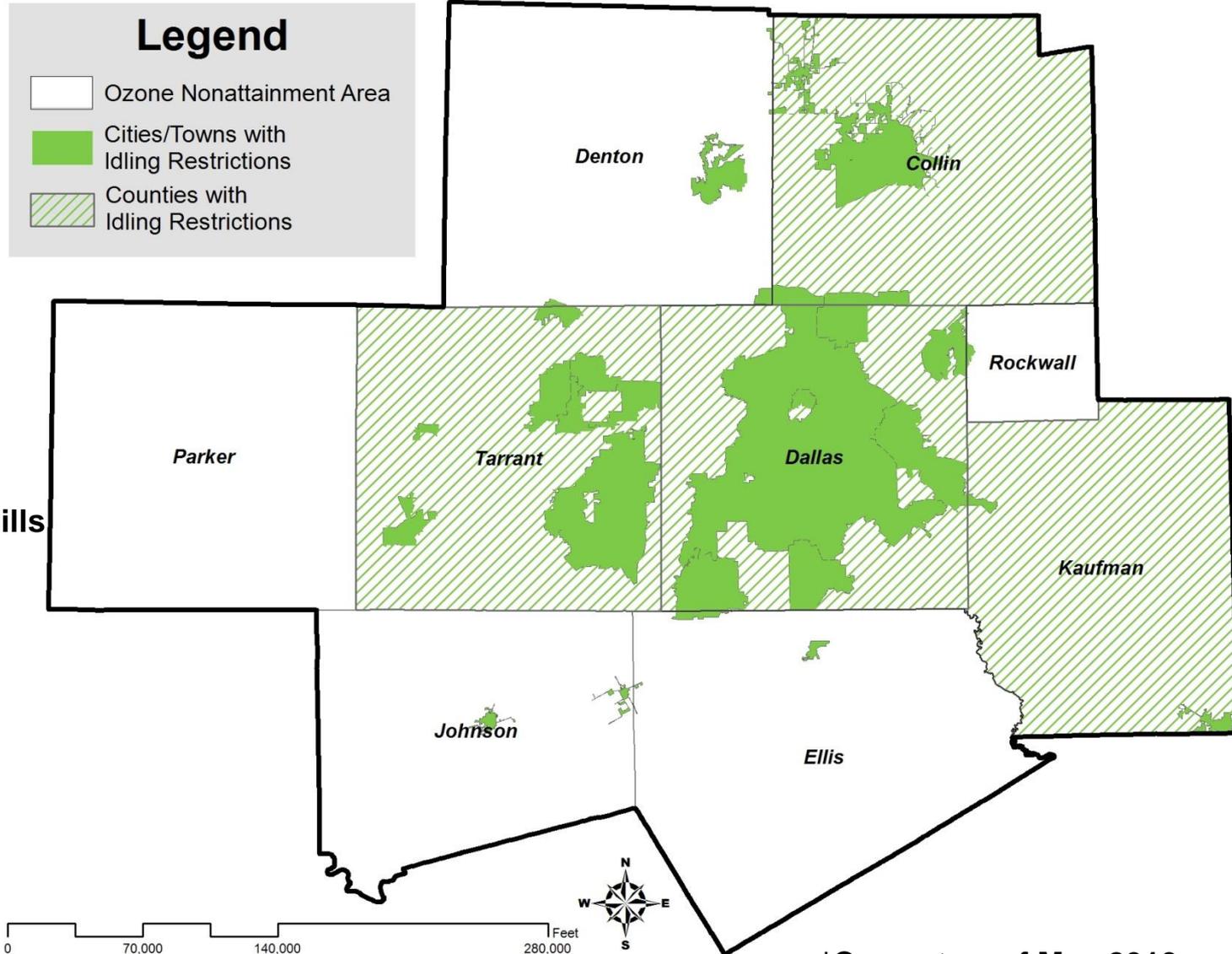
**\*Current as of May 2010**

# LOCALLY ENFORCED IDLING RESTRICTIONS

## North Central Texas Area

### Adopting Entities\*

- City of Arlington
- City of Benbrook
- City of Cedar Hill
- City of Celina
- City of Colleyville
- City of Dallas
- City of Euless
- City of Hurst
- City of Keene
- City of Lake Worth
- City of Lancaster
- City of Mabank
- City of McKinney
- City of Mesquite
- City of North Richland Hills
- City of Pecan Hill
- City of Richardson
- City of Rowlett
- City of University Park
- Collin County
- Dallas County
- Kaufman County
- Tarrant County
- Town of Little Elm
- Town of Westlake
- Town of Venus



\*Current as of May 2010



# Texas Idling Rule



# MOTOR VEHICLE IDLING RESTRICTIONS

Texas Commission on Environmental Quality

## Texas Administrative Code (TAC)

TITLE 30

Part 1

Chapter 114

Subchapter J

Division 2

Locally Enforced Motor Vehicle Idling Limitations

§ 114.510-114.517

# LOCALLY ENFORCED IDLING RESTRICTIONS

## TCEQ Rule Timeline



<b>Original Rule Effective Date</b>	<b>December 9, 2004</b>
<b>EPA Model State Law Released</b>	<b>May 4, 2006</b>
<b>Amended Rule Effective Date</b>	<b>May 17, 2006</b>
<b>Rule Revision Adoption</b>	<b>January 9, 2008</b>
<b>Particular Elements of Rule Expired</b>	<b>September 1, 2009</b>



# LOCALLY ENFORCED IDLING RESTRICTIONS



## Control Requirements



No Gasoline or Diesel Powered Motor Vehicle Over 14,000 Pounds (GVWR) May Idle the Main Engine for More Than 5 Minutes When the Vehicle is Not in Motion

Applicable From April 1 Through October 31

**NOTE:** As of September 1, 2009, all vehicles, including those with a sleeper berth on a government-mandated rest period, are required to comply with this rule within jurisdictions that have it adopted.

# MOTOR VEHICLE IDLING RESTRICTIONS

## Applicability

**Motor Vehicles with a Gross Vehicle Weight Rating of 14,000 Pounds or Greater, i.e.:**

**Flat Bed, Stake Trucks, Step Vans, Utility Trucks, Dump, Garbage, Fuel And Beverage Delivery Trucks, Tractor-Trailer Trucks, School And Transit Buses**

**Only Within a Jurisdiction of a Local Government that Has Signed a Memorandum of Agreement with TCEQ to Delegate Enforcement of the Provisions to that Local Government**

**Jurisdiction-By-Jurisdiction Adoption Required**

# LOCALLY ENFORCED IDLING RESTRICTIONS

## Exemptions

### Vehicle Type

Military, Emergency or Law Enforcement Vehicles

Airport Ground Support Equipment

The Owner of a Vehicle Rented or Leased to a Person  
Not Employed By Owner

### Operations

Idling Due to Traffic Congestion

Motors Run as Power Source for Mechanical  
Operations

Idling During Operation for Maintenance/Diagnostic  
Purposes

Operation of Engine Solely to Defrost a Windshield



# LOCALLY ENFORCED IDLING RESTRICTIONS

## Exemptions Continued

### Air Conditioning And Heating Provision

For Passenger Comfort and Safety in Vehicles Intended for Commercial/Public Passenger Transportation or Passenger Transit Operations  
**(30 Minutes Maximum)**

For Employee Health or Safety While Employee is Using Vehicle to Perform an Essential Job Function Related to Roadway Construction or Maintenance



# LOCALLY ENFORCED IDLING RESTRICTIONS

## Texas Stakeholder Group

**The Texas Commission on Environmental Quality  
Recently Launched a Motor Vehicle Idling  
Stakeholder Group**

- **Open to the Public**
- **First Meeting - April 2010**
- **Seeking Comments on the Rule Including:**
  - **Extension of Government Mandated Resting Period Exemption**
  - **Year-Round Restrictions**
  - **Exemption of Armored Vehicles**

**[www.tceq.state.tx.us/implementation/air/mobilesource/vim/idling\\_stakeholder.html](http://www.tceq.state.tx.us/implementation/air/mobilesource/vim/idling_stakeholder.html)**



# Local Government Implementation



# LOCALLY ENFORCED IDLING RESTRICTIONS

## Implementation In North Central Texas

### Three Stages

Stage 1: Initiation

Stage 2: Education

Stage 3: Enforcement

# LOCALLY ENFORCED IDLING RESTRICTIONS

## Stage 1: Initiation

### Local Government Activity:

- Adopt TCEQ Idling Limitation Rule
- Sign North Texas MOA

### NCTCOG Staff Assistance:

- Develop Guide for Local Governments
- Provide Information to Council Members, Commissioners, and City/County Staff (Upon Request)

**NOTE:** For State Implementation Plan (SIP) reporting requirements, NCTCOG requests being notified following rule adoption and execution of MOA.

# LOCALLY ENFORCED IDLING RESTRICTIONS

## Stage 2: Education

### Local Government Activity:

- Order and Install Signs in Areas Traditionally Known for Excessive Idling
- Promote Awareness of Restrictions and Idle Reduction Technology Options Within Jurisdiction

### NCTCOG Staff Assistance:

- For Regional Use:
  - Anti-idling Street Signs
  - Driver Education Brochures
  - Idling Complaint Hotline and Website to Report Idling Vehicles

**1-877-NTX-IDLE**

**[www.EngineOffNorthTexas.org](http://www.EngineOffNorthTexas.org)**



# LOCALLY ENFORCED IDLING RESTRICTIONS

## Stage 3: Enforcement

### Local Government Activity:

- Identify Enforcement Personnel
- Determine Procedures to Spot and Cite Violators
- Log Citations for Requisite Reporting

### NCTCOG Staff Assistance:

- Present Enforcement Procedure Options
- Provide Training on NCTCOG Emissions Database (NED)
- Facilitate Discussions Between Agencies on Potential Sources of Funding



# Technology Options

# IDLE REDUCTION TECHNOLOGIES

## Options

	Technology	Cost	Features
On-Board	Automatic Start/Stop System	<\$1,000	Available from engine manufacturer, low driver acceptance
	Direct-Fired Heaters	\$900–\$1,200	Lightweight, available from engine manufacturer, heat only
	Auxiliary Power Units/Generator Sets	\$5,000–\$7,000	Addresses comfort needs, heavy, noise component, requires after-market retrofit
	Battery Powered Heating/AC	\$7,000–\$8,000	Addresses comfort needs, heavy, zero air emissions
On-Site	External Heating & A/C (Including Electrified Truck Stops)	~\$1.25-\$2.50 per hour	Some require truck modifications (i.e. electric heat/AC, inverter/charger) and others do not.

# LOCALLY ENFORCED IDLING RESTRICTIONS

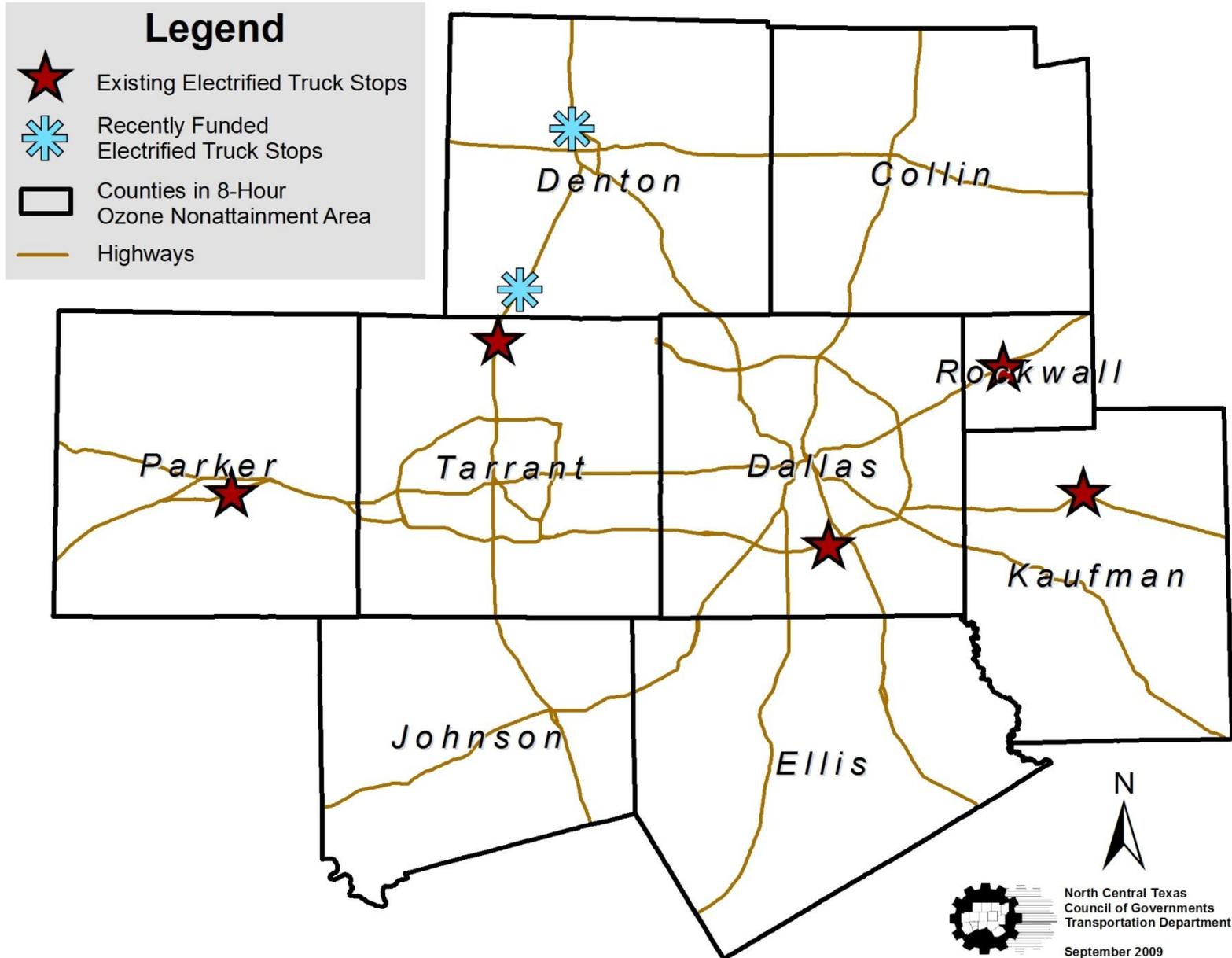
## Idle Reduction Technology

### On-Site Infrastructure



# LOCALLY ENFORCED IDLING RESTRICTIONS

## Truck Stops With Electrification Options in DFW



# LOCALLY ENFORCED IDLING RESTRICTIONS

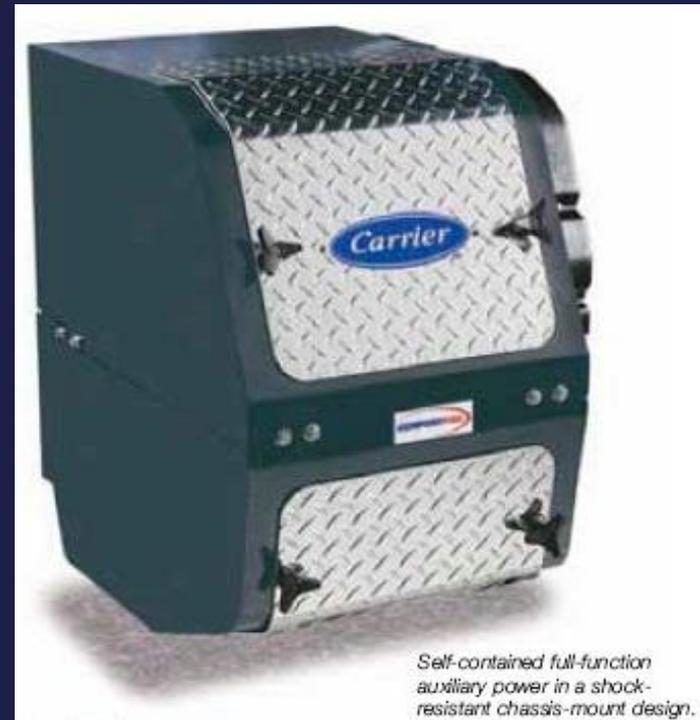
## Idle Reduction Technology

### On-Board Infrastructure

### Auxiliary Power Units (APU)



Photo courtesy of Next Generation Power



*Self-contained full-function auxiliary power in a shock-resistant chassis-mount design.*



# Incentives & Funding Opportunities

# LOCALLY ENFORCED IDLING RESTRICTIONS

## Ways To Engage Drivers

### Education

Brochures and Driver Training

### Pledges

Ask Drivers to Take a Pledge to Minimize Idling

### Incentives

Since Eliminating Unnecessary Fuel Consumption Saves Money, This Savings Can Partially Be Used to Incentivize Drivers to Reducing Idling

#### EXAMPLE)

Monthly Incentive	Idling Threshold*	Fuel Savings Per Month @ \$3.00-\$4.00/Gal
\$10 gas/gift card	< 100 hours per month	\$180-\$240
\$20 gas/gift card	< 50 hours per month	\$330-\$440
\$50 gas/gift card	No idling per month	\$480-\$640

\*Assumes baseline idling of 160 hours per month



# LOCALLY ENFORCED IDLING RESTRICTIONS

## Funding Opportunities



### NCTCOG Funding Programs

On-Site and On-Board Idle Reduction Projects,  
Call for Projects Open Periodically Throughout Year  
[www.nctcog.org/AQFunding](http://www.nctcog.org/AQFunding)

### Texas Emissions Reduction Plan (TERP)

On-Site and On-Board Idle Reduction Infrastructure  
[www.TERPGrants.org](http://www.TERPGrants.org)

### SmartWay Transport Partnership

Innovative Financing for Fuel-Efficient Technologies  
[www.epa.gov/smartway](http://www.epa.gov/smartway)





# Resources

# LOCALLY ENFORCED IDLING RESTRICTIONS

## Resources

### EPA SmartWay Savings Calculator

Designed to Help Truck Owners Compare the Costs and Estimate the Fuel Savings Associated with Various Efficiency Technologies

[www.epa.gov/smartway/transport/calculators](http://www.epa.gov/smartway/transport/calculators)

#### Calculator for single-owner (one truck):

##### RESULTS:

Equipment	Cost	% Fuel Savings	Annual Fuel Savings	Monthly Fuel Savings	Monthly Loan Payment	Net Monthly Savings
APU	\$8500	3%	\$3675	\$306	(\$164)	\$142

##### STEP 1: ENTER YOUR TRUCK AND LOAN INFORMATION.

Enter your basic vehicle and loan numbers here **OR** Click the "Load Typical Values" button below for help with typical long haul truck numbers.

Annual Fuel Use  (Gallons)  
Cost of Fuel \$   
Annual Idling  (Hours)  
Loan Period  (Months)  
Loan Interest Rate  %  
Yearly Fuel Cost \$ 140000  
Monthly Fuel Cost \$ 11667

##### STEP 2: SELECT TECHNOLOGIES OF YOUR TRUCK.

Check the technology box below to test various combinations of technologies for your truck. You can check as many items as you want.

Technology	Cost
<input type="checkbox"/> <a href="#">Bunk Heater (Heater)</a>	\$ <input type="text" value="1500"/>
<input checked="" type="checkbox"/> <a href="#">Auxiliary Power Unit (APU)</a>	\$ <input type="text" value="8500"/>
<input type="checkbox"/> <a href="#">Aluminum Wheel Sets for Single Wide Tires (Tires)</a>	\$ <input type="text" value="5600"/>
<input type="checkbox"/> <a href="#">Trailer Aerodynamics (Aero)</a>	\$ <input type="text" value="2400"/>
<input type="checkbox"/> <a href="#">Automatic Tire Inflation (ATI)</a>	\$ <input type="text" value="900"/>
<input type="checkbox"/> <a href="#">Oxidation Catalyst (DOC)</a>	\$ <input type="text" value="1200"/>

Load Typical Values

Savings Without Loan

Clear

# LOCALLY ENFORCED IDLING RESTRICTIONS

## Resources

Argonne National Laboratory

Determine How Much Could Be Saved By Idling Less

[www.transportation.anl.gov/pdfs/TA/361.pdf](http://www.transportation.anl.gov/pdfs/TA/361.pdf)

<p><b>1</b></p>	<p>How much fuel is used for idling? If you don't know, look up the number in the table below.</p> <p><input type="text"/> gallons/hour</p>	<p>Realistically, how many hours each year might you use IR devices instead of idling?<sup>a</sup></p> <p><input type="text"/> hours/year</p>	<p>What is the price of diesel fuel?</p> <p><input type="text"/> \$ /gallon</p>	<p><b>Avoidable Idling Fuel Costs</b></p> <p>= \$ <input type="text"/> /year +</p>	
<p><b>2</b></p>	<p><input type="text"/> gallons/hour</p>	<p><input type="text"/> hours/year</p>	<p>What is your average fuel economy?</p> <p><input type="text"/> miles/gallon</p>	<p>"Miles of idling"<sup>b</sup> (idling is like putting miles on your engine)</p> <p>= <input type="text"/> miles/year</p>	
<p><b>3</b></p>	<p>How much does an oil change cost?</p> <p>\$ <input type="text"/> /oil chg.</p>	<p>How many miles between oil changes?</p> <p><input type="text"/> miles/oil chg.</p>	<p>= \$ <input type="text"/> /mile</p>	<p>"Miles of idling"</p> <p><input type="text"/> miles/year</p>	<p><b>Preventive Maintenance Costs<sup>1</sup></b></p> <p>= \$ <input type="text"/> /year +</p>
<p><b>4</b></p>	<p>How much does an engine overhaul cost?</p> <p>\$ <input type="text"/> /overhaul</p>	<p>How many miles between overhauls?</p> <p><input type="text"/> miles/overhaul</p>	<p>= \$ <input type="text"/> /mile</p>	<p>"Miles of idling"</p> <p><input type="text"/> miles/year</p>	<p><b>Overhaul Costs<sup>1</sup></b></p> <p>= \$ <input type="text"/> /year =</p>
<p><b>5</b></p>	<p>Add right-hand column</p>				<p><b>Total Avoidable Idling Costs</b></p> <p>= \$ <input type="text"/> /year</p>

# LOCALLY ENFORCED IDLING RESTRICTIONS

## Resources

### EPA Interactive Map

Features Data Including:

Electrified Truck Stops

SmartWay Partners

Ethanol and Biodiesel Fueling Stations

Ozone and PM Nonattainment Areas

[epamap10.epa.gov/website/irim\\_us\\_map.asp](http://epamap10.epa.gov/website/irim_us_map.asp)

The screenshot displays the EPA Interactive Map interface. The main map shows Texas (TX) and surrounding states (NM, OK, MO, AR, LA) with various features overlaid, including SmartWay Partner Headquarters (green leaves), Electrified Truck Stops (green stars), Truck Stops (orange stars), NDC School Bus USA Retrofit Projects (blue dots), NDC Retrofit Projects (pink dots), E85 Refueling Stations (blue squares), BioDiesel Refueling Stations (yellow squares), Bus Stops (yellow circles), Marine Terminals (blue triangles), Border Crossings (plus signs), and Railways (black lines with cross-ticks). The interface includes a left sidebar with navigation options like 'Select a New State', 'State Level View', 'Recenter Map', and 'Get Details'. The right sidebar shows 'Select Features to Display' with a 'Refresh Map' button and a list of features with checkboxes. The bottom of the interface has 'Map Features', 'Printable', and 'Help' buttons.

# LOCALLY ENFORCED IDLING RESTRICTIONS

## Resources

### Stop The Soot

New Jersey Department of Environmental Protection's  
Diesel Risk Reduction Program

[www.StopTheSoot.org](http://www.StopTheSoot.org)

### American Transportation Research Institute

Cab Card of Anti-Idling Regulations Nationwide

[atri-online.org/index.php](http://atri-online.org/index.php)

### National Idle Reduction Network News

Sponsored by Department of Energy (DOE) to Bring  
Together Companies, Manufacturers, and Public  
Agencies to Solve Idling

[www1.eere.energy.gov/vehiclesandfuels/resources/fcvt\\_national\\_idling.html](http://www1.eere.energy.gov/vehiclesandfuels/resources/fcvt_national_idling.html)



# LOCALLY ENFORCED IDLING RESTRICTIONS

## Contact Information

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