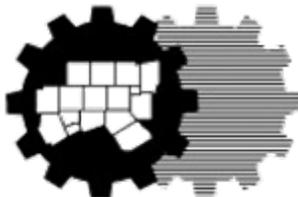


# TRANSPORTATION AND AIR QUALITY IN NORTH CENTRAL TEXAS

**University of Texas at Arlington**  
**October 13, 2008**



**Amanda Brimmer, E.I.T.**  
**Tamara Hollowell, A.I.C.P.**  
**North Central Texas Council of Governments**

# **WHAT IS THE NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS (NCTCOG)?**

**A voluntary association of, by, and for local governments.**

**NCTCOG serves a 16-county region of North Texas, which includes over 230 member governments including counties, numerous cities, school districts, and special districts.**

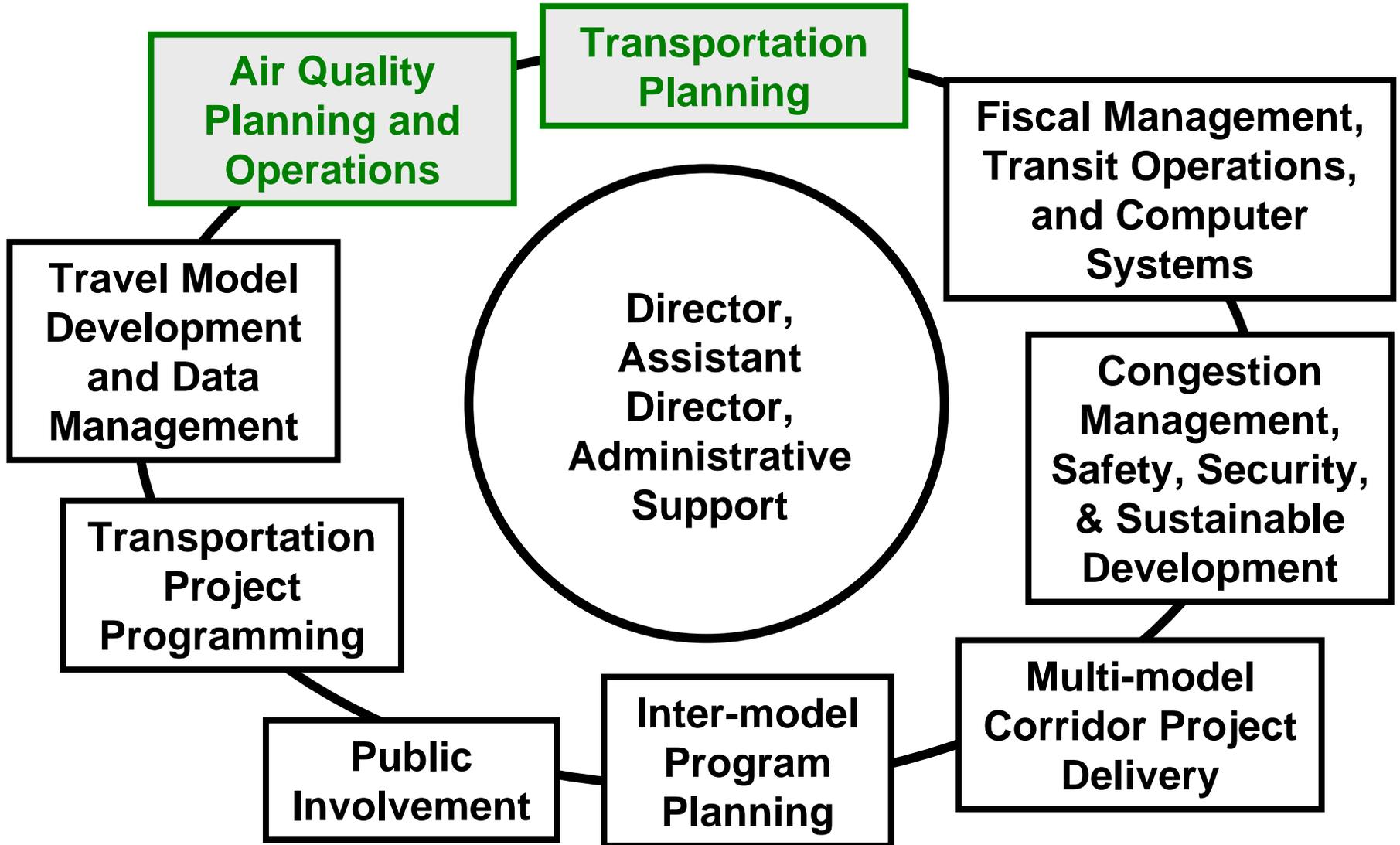
**Established to assist local governments in planning for common needs, cooperating for mutual benefit, and coordinating for sound regional development.**

**NCTCOG's purpose is to help local governments recognize regional opportunities, eliminate unnecessary duplication, and make joint decisions.**

# NCTCOG STRUCTURE

<u>Department</u>	<u>Responsibilities</u>
<b>Executive Director's Office</b>	Agency management
<b>Agency Administration</b>	Provides grant accounting and reporting
<b>Department of Community Services</b>	Area Agency on Aging, Regional 9-1-1 Emergency Number Administration, Criminal Justice Planning and Funds Allocation, Auto Theft Prevention, and Public Safety Radio Communications
<b>Emergency Preparedness</b>	Leverages existing efforts across professional disciplines to strengthen regional emergency preparedness
<b>Environment &amp; Development</b>	Sustainable Environmental Excellence—or SEE programs: SEE Less Trash, SEE Safe Clean & Green Regional Environmental Corridors, and SEE Development Excellence.
<b>Public Affairs</b>	Provides external services on behalf of the Agency
<b>Research and Information Services</b>	Provides objective information and analysis on the development of the region for use in area planning and economic development activities; to support the information service needs of NCTCOG; and to assist local governments in the implementation of information technology
<b>Transportation</b>	<b>Serves as the Metropolitan Planning Organization (MPO) for the Dallas-Fort Worth region, provides technical planning services in support of development, project selection, and implementation of transportation projects</b>
<b>Workforce Development</b>	Administers publicly funded employment and training programs for 14 counties in North Central Texas

# TRANSPORTATION DEPARTMENT STRUCTURE



# **AIR QUALITY AND TRANSPORTATION PLANNING IN NORTH CENTRAL TEXAS**

## **MPO/RTC\* Roles and Responsibilities**

### **Metropolitan Transportation Plan**

**Mobility 2030**

### **Transportation Improvement Program (Selected by RTC)**

**Surface Transportation Program-Metropolitan Mobility**

**Congestion Mitigation and Air Quality Program**

**Section 5307 (Urbanized Area)**

**Section 5310 (Elderly and Disabled)**

### **Air Quality Conformity Determinations**

### **Unified Planning Work Program**

**Metropolitan Transportation Planning Funds:**

**Federal Transit Administration (Section 5303)**

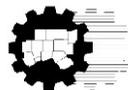
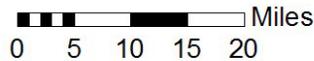
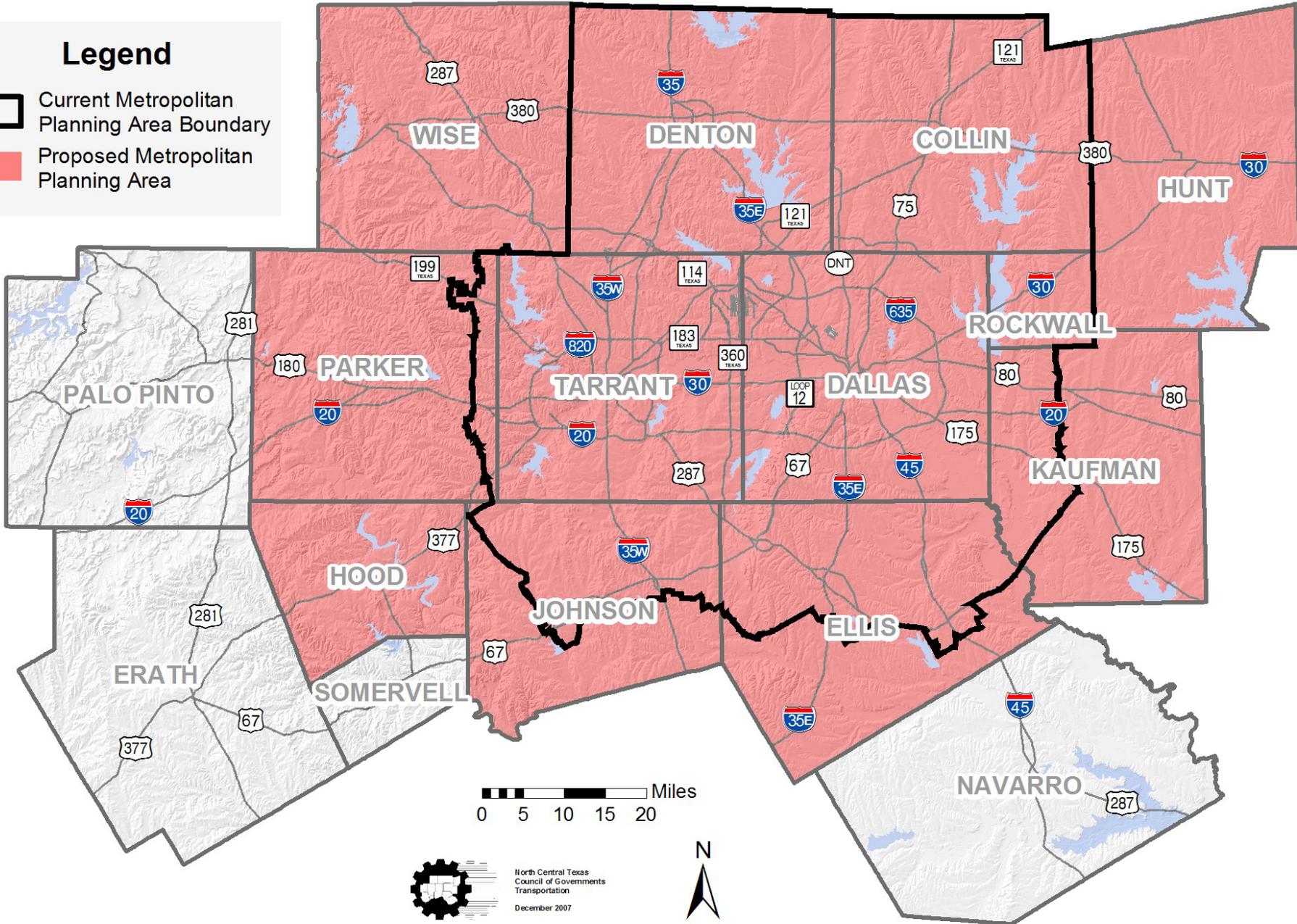
**Federal Highway Administration (PL)**

**Texas Department of Transportation**

# PROPOSED METROPOLITAN PLANNING AREA

## Legend

-  Current Metropolitan Planning Area Boundary
-  Proposed Metropolitan Planning Area



North Central Texas  
Council of Governments  
Transportation  
December 2007

# FEDERAL AIR QUALITY STANDARDS

# 1990 CLEAN AIR ACT AMENDMENTS

## National Ambient Air Quality Standards (NAAQS)

### Six Criteria Pollutants

**Carbon Monoxide (CO)**

**Lead (Pb)**

**Nitrogen Oxides (NO<sub>x</sub>)**

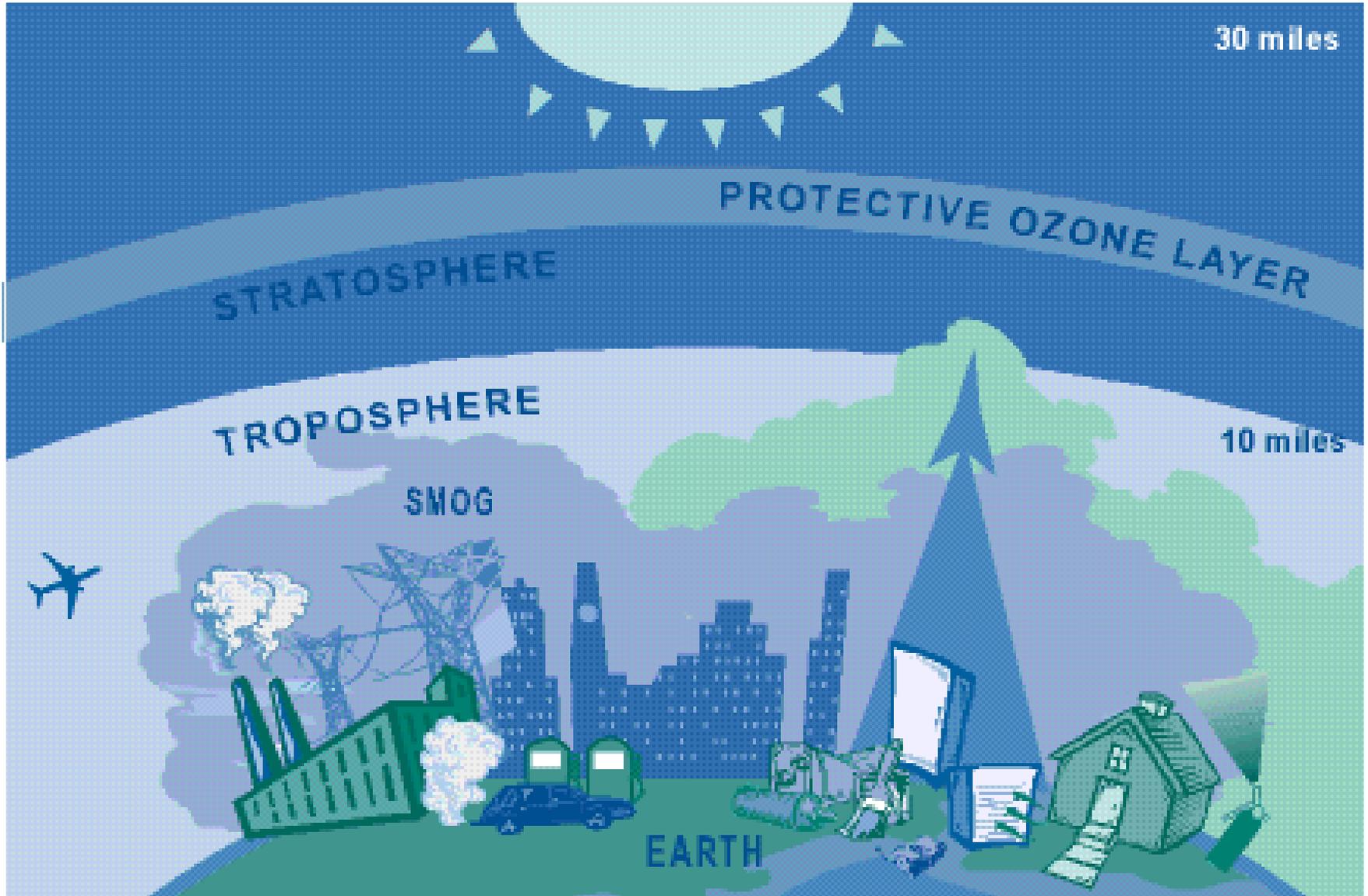
**Ozone (O<sub>3</sub>)**

**Particulate Matter (PM<sub>2.5</sub> & PM<sub>10</sub>)**

**Sulfur Dioxide (SO<sub>2</sub>)**

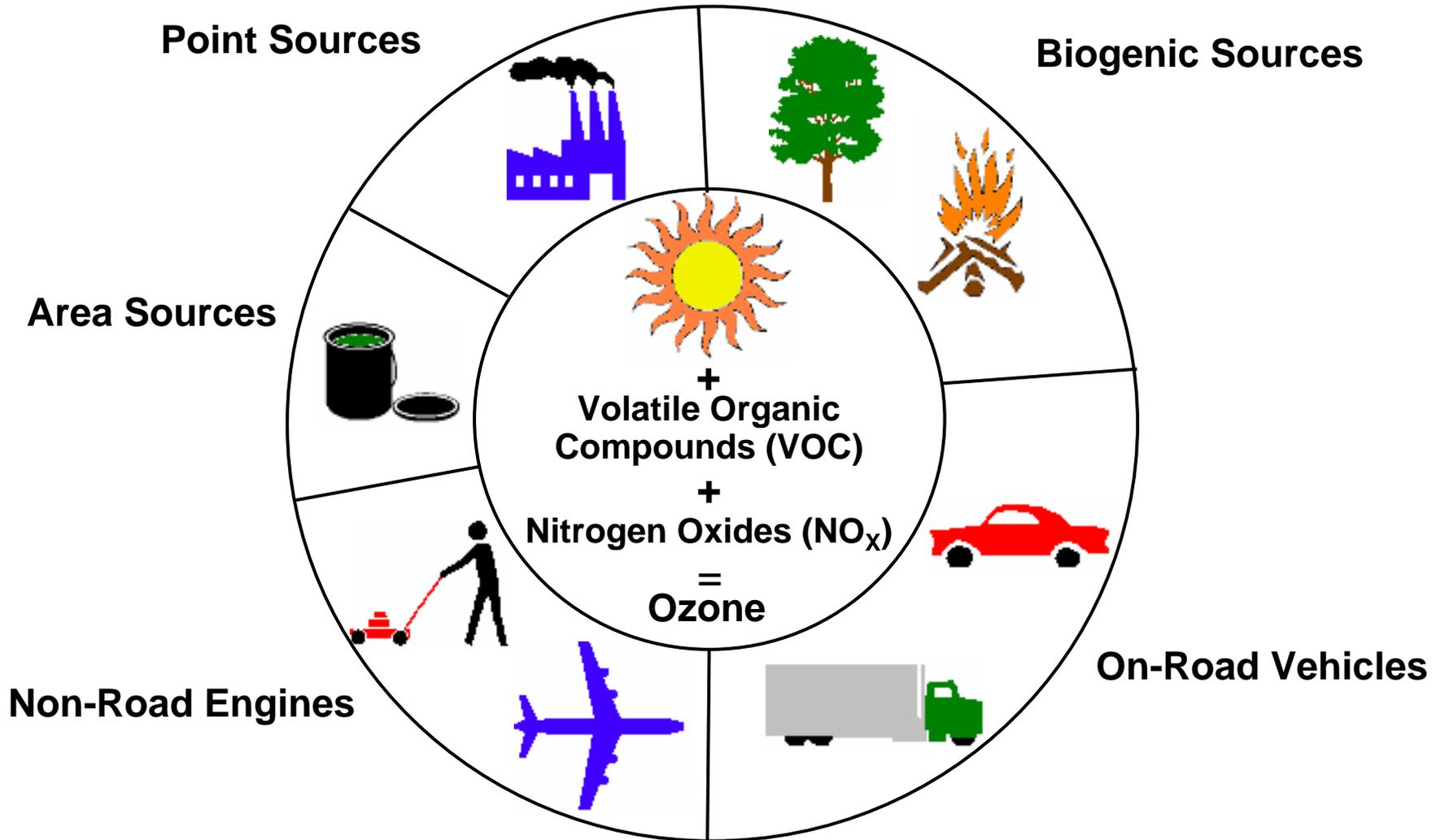


# GOOD VERSUS BAD OZONE



# HOW IS OZONE FORMED?

## Emission Source Categories



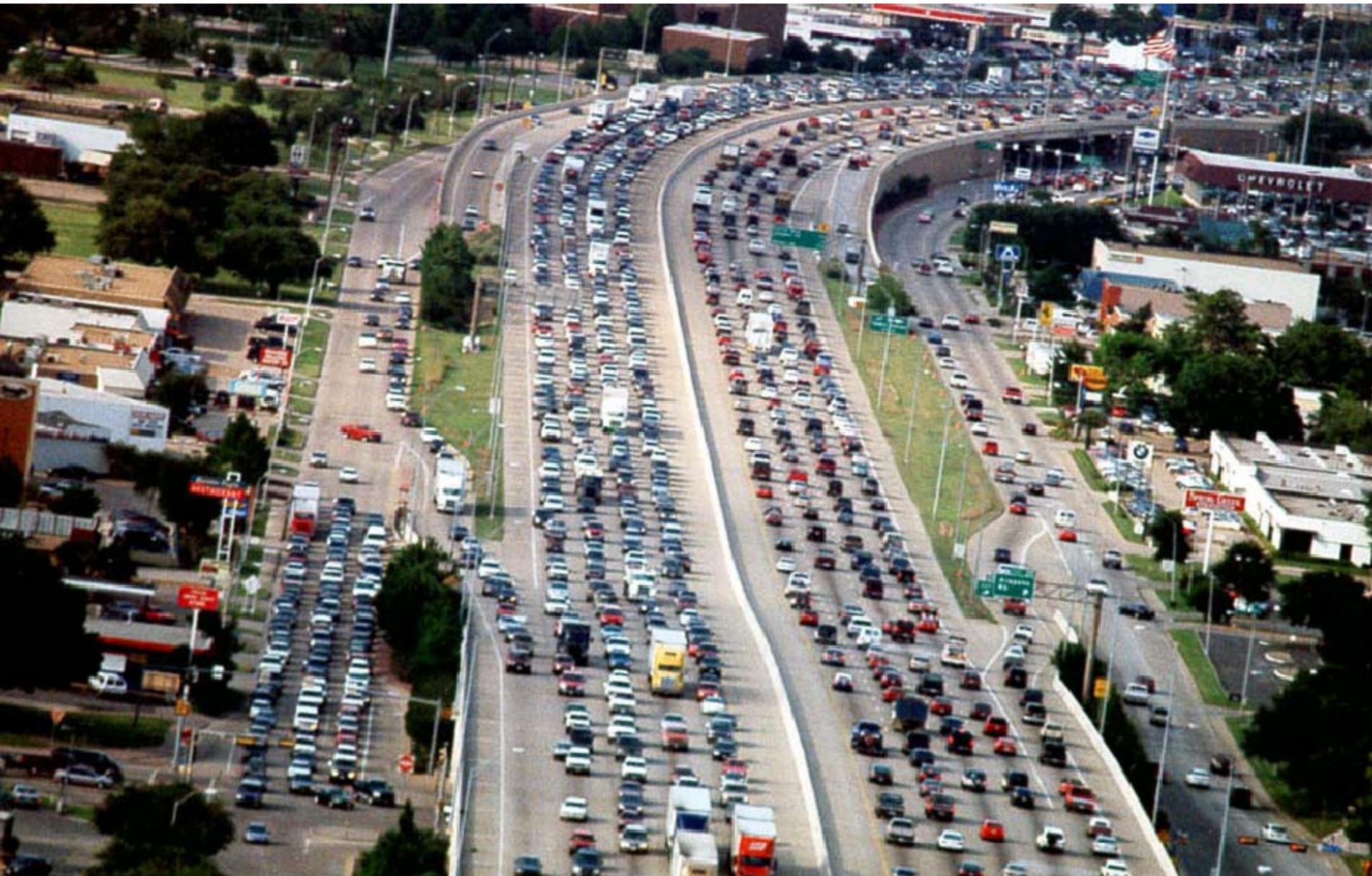
# MOBILE SOURCE POLLUTION

Quantity verses Quality



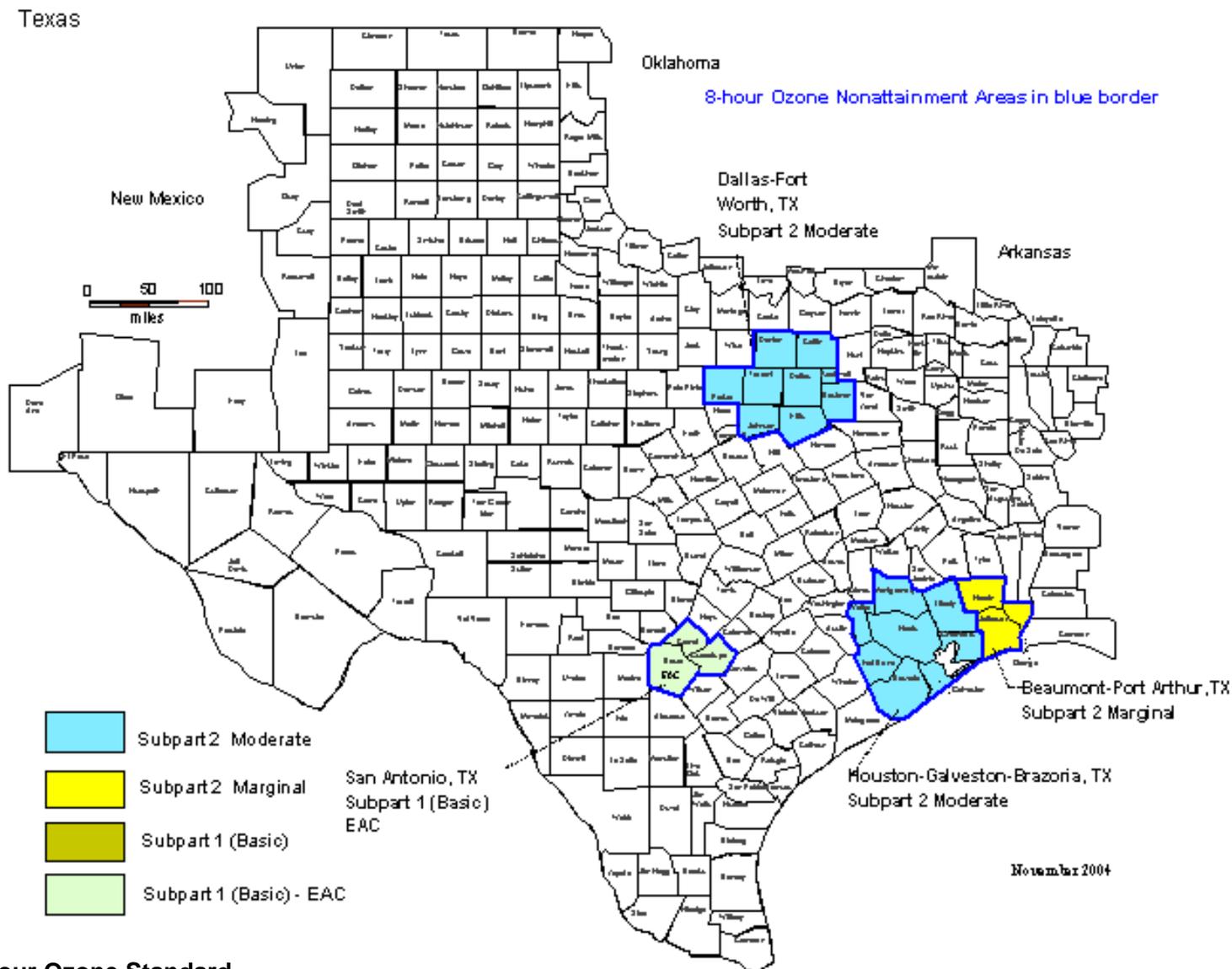
# MOBILE SOURCE POLLUTION

Quantity verses Quality



# TEXAS AIR QUALITY

## Nonattainment and Early Action Compact Areas



Based on 1997 8-hour Ozone Standard

Source: EPA [www.epa.gov/oar/oaqps/greenbk/tx8.html](http://www.epa.gov/oar/oaqps/greenbk/tx8.html)

# **DALLAS-FORT WORTH AIR QUALITY OVERVIEW AND UPDATE**

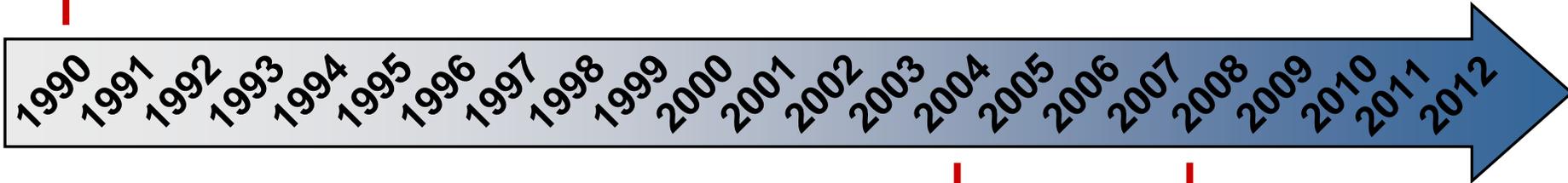
# FEDERAL OZONE STANDARDS

## DFW Nonattainment Area

**Clean Air Act Amendments of 1990**

**1-Hour Ozone Standard**

**4 North Texas Counties Designated**

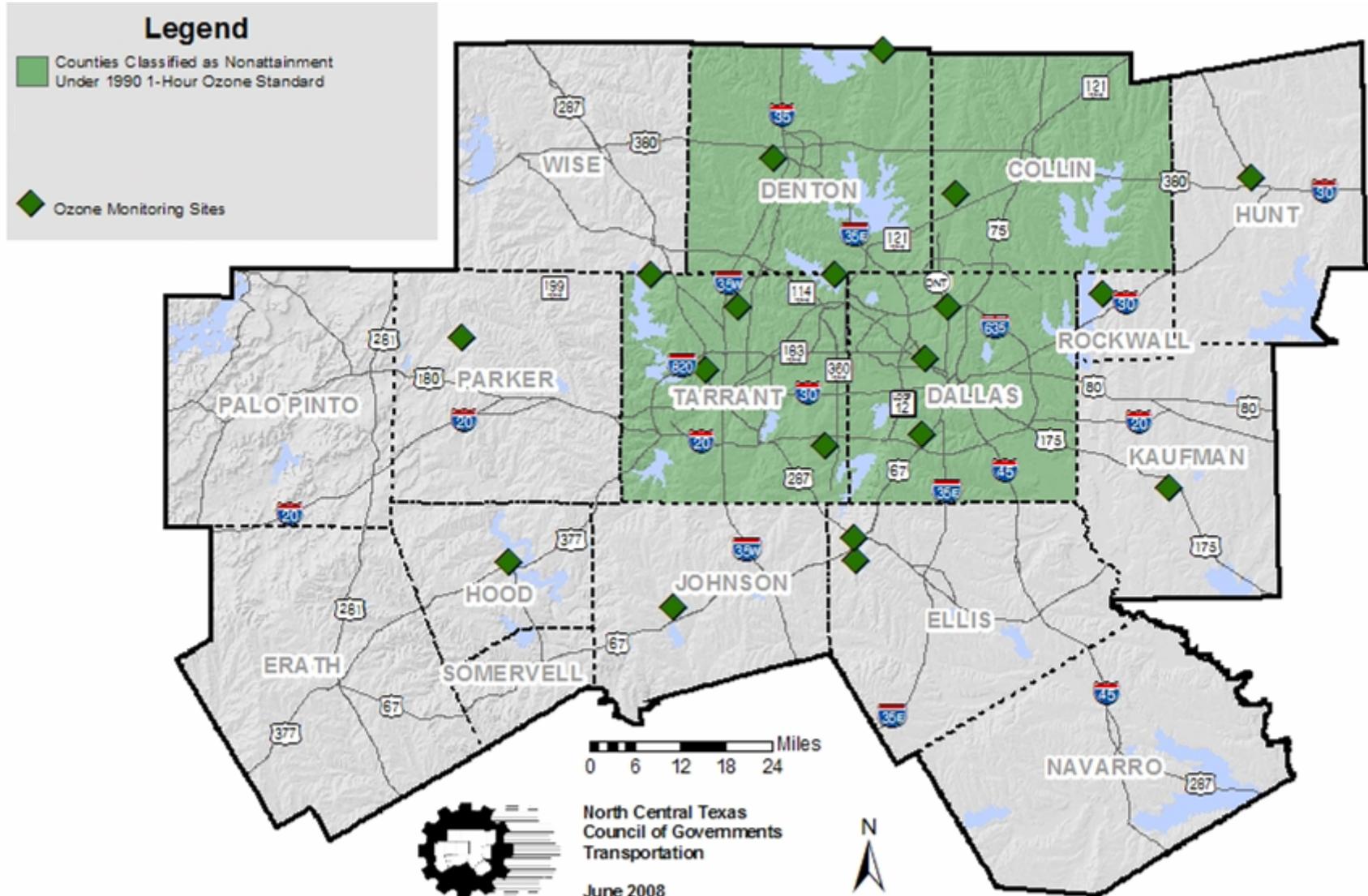


**8-Hour Ozone Standard**  
**9 North Texas Counties Designated**  
**Attainment Date: June 15, 2010**

**8-Hour Ozone Standard Revised**  
**Designations in 2010**

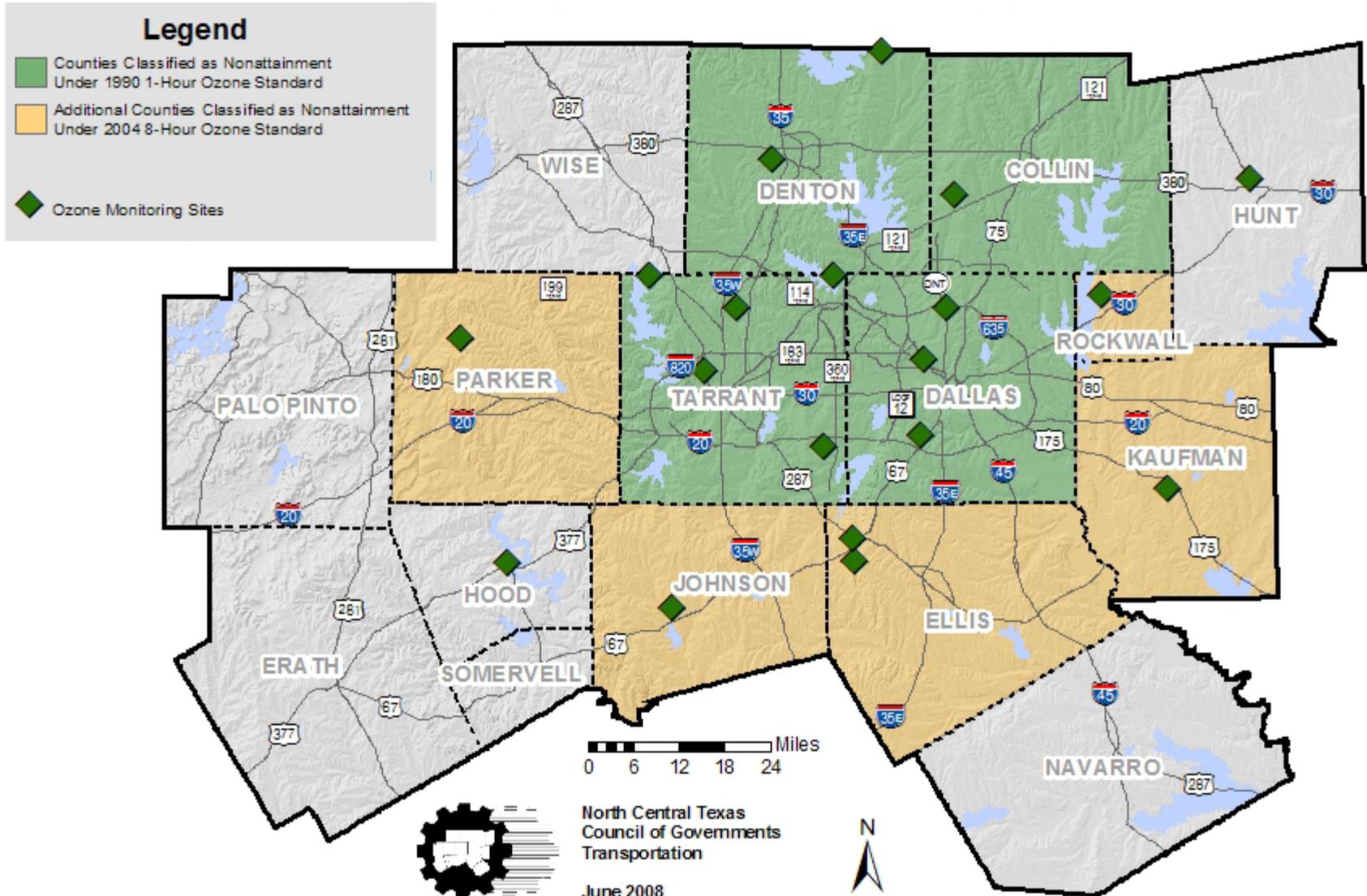
# DFW OZONE NONATTAINMENT AREA

## 1-Hour Ozone Standard



# DFW OZONE NONATTAINMENT AREA

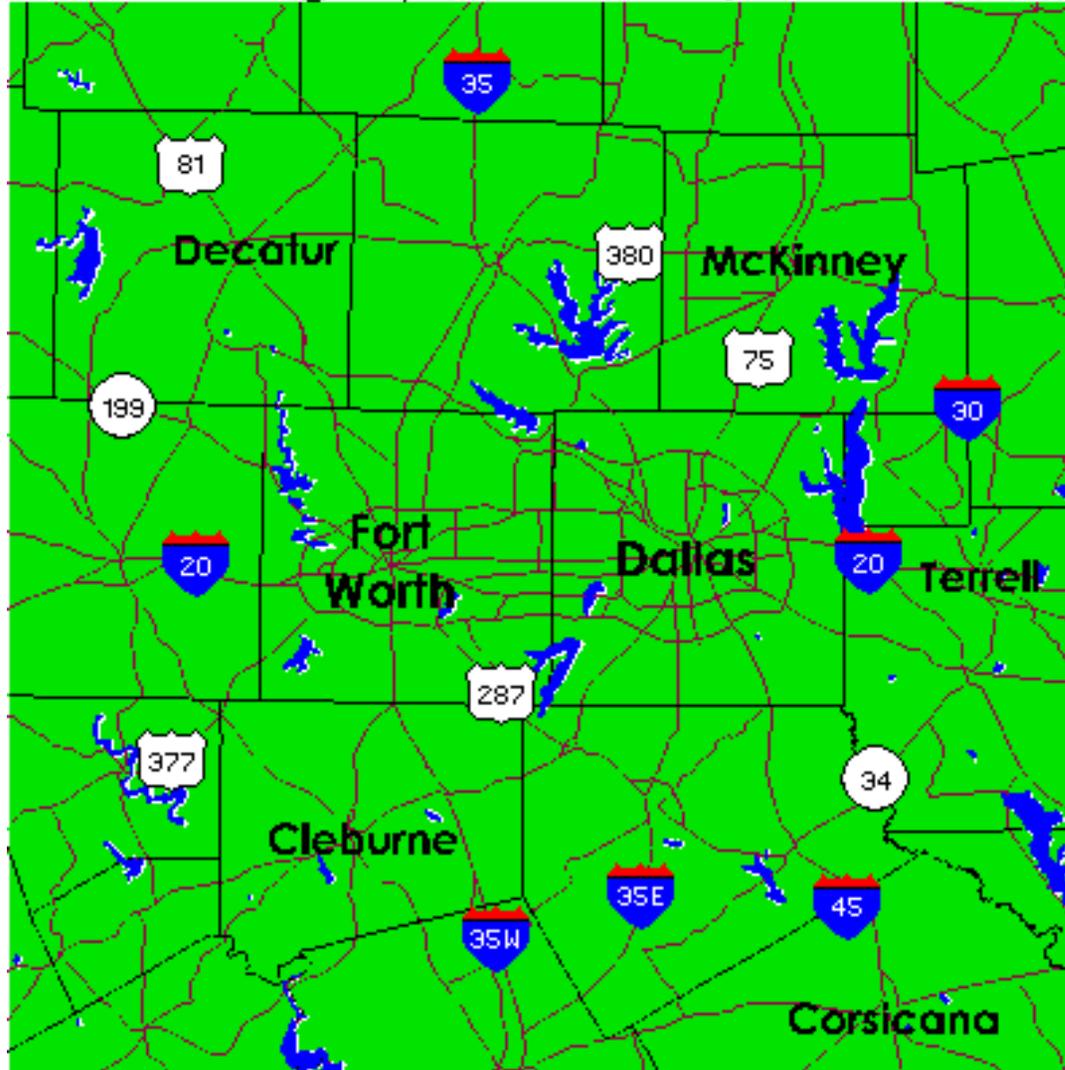
## 8-Hour Ozone Standard





# OZONE ANIMATION IN DFW

North-Central Texas  
Aug 4, 2008 9 AM



## Air Quality



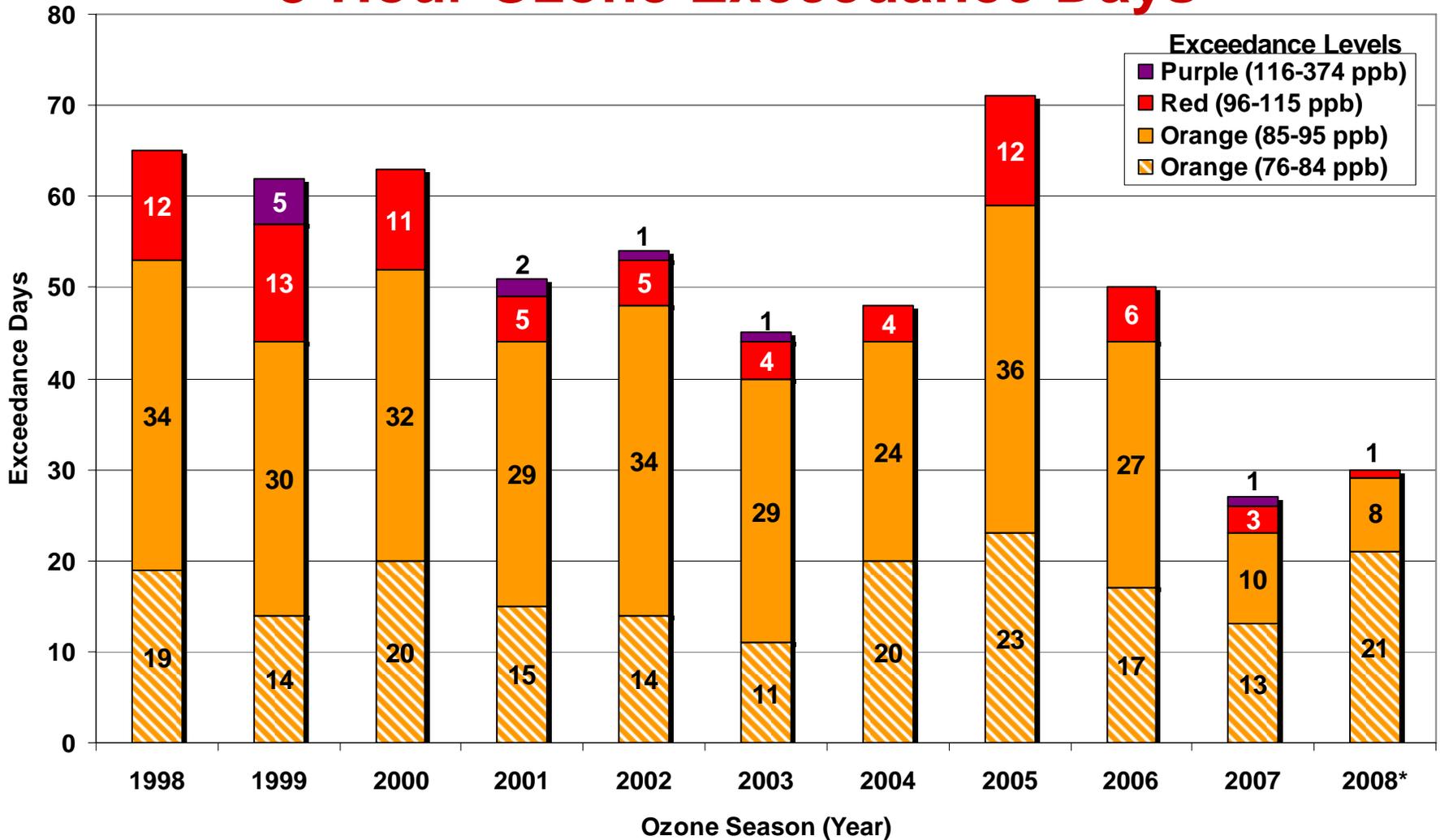
## AQ Monitoring Site



1-8-01

# 2008 OZONE SEASON

## 8-Hour Ozone Exceedance Days



[www.nctcog.org/trans/air/ozone/scorecards.asp](http://www.nctcog.org/trans/air/ozone/scorecards.asp)

Exceedance Level indicates daily maximum 8-hour average ozone concentration. Exceedance Levels are based on Air Quality Index (AQI) thresholds established by the EPA for the revised ozone standard of 75 ppb.

 = Additional level orange exceedance days under the revised standard that were not exceedances under the previous 84 ppb standard. (AQI level orange = 76-95 ppb)

\* Data current as of October 1, 2008

Source: Texas Commission on Environmental Quality  
[www.tceq.state.tx.us/cgi-bin/compliance/monops/8hr\\_exceed.pl](http://www.tceq.state.tx.us/cgi-bin/compliance/monops/8hr_exceed.pl)  
 ppb = parts per billion

# NORTH TEXAS AIR QUALITY

## The SIP Verses Conformity

### State Implementation Plan (SIP)

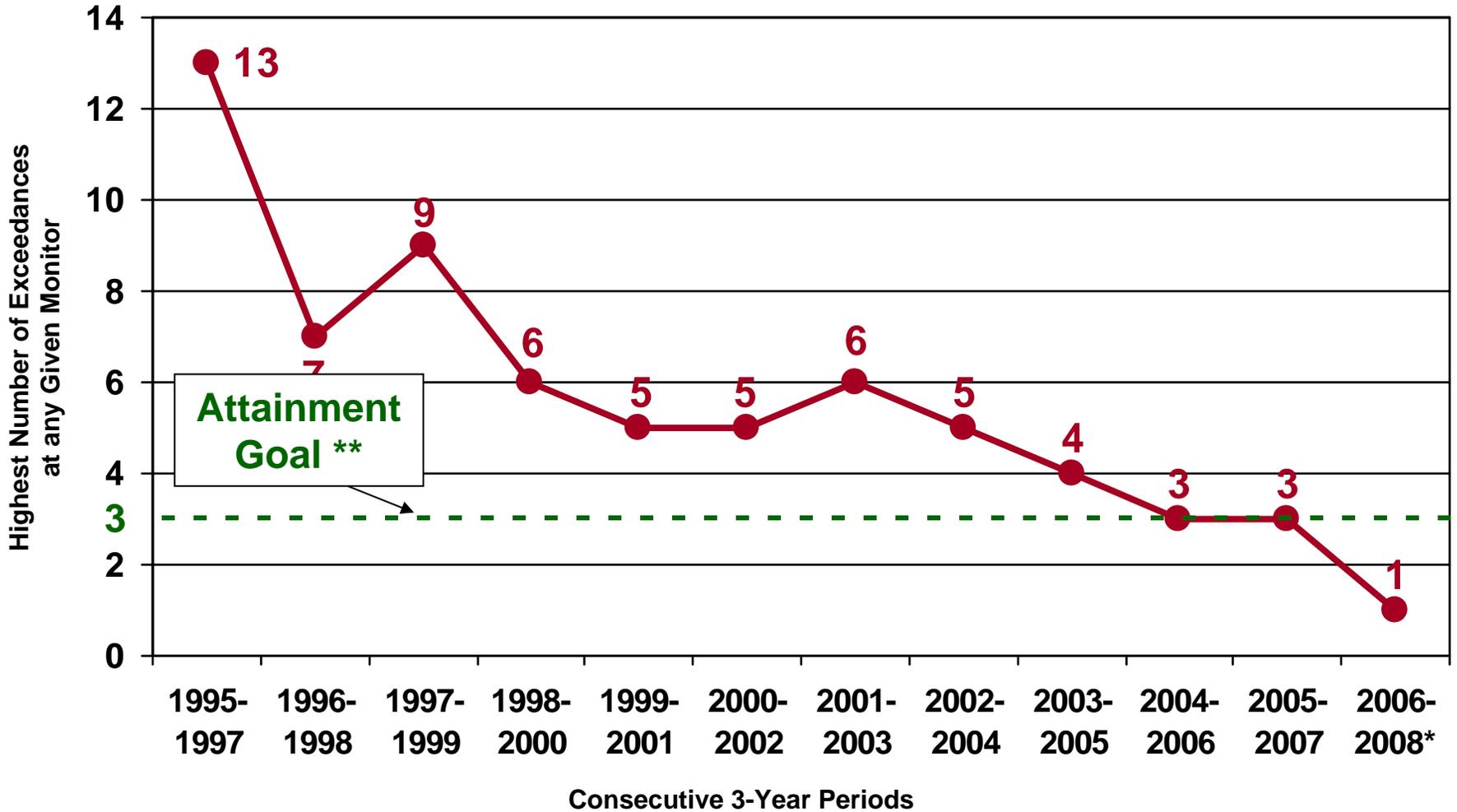
**The SIP is a federally-enforceable plan for each State that identifies how that State will attain and/or maintain the primary and secondary (NAAQS).**

### Conformity

**Transportation conformity is a way to ensure that federal funding and approval goes to the transportation activities that are consistent with air quality goals.**

# 1-HOUR OZONE STANDARD\*

## DFW Nonattainment Area

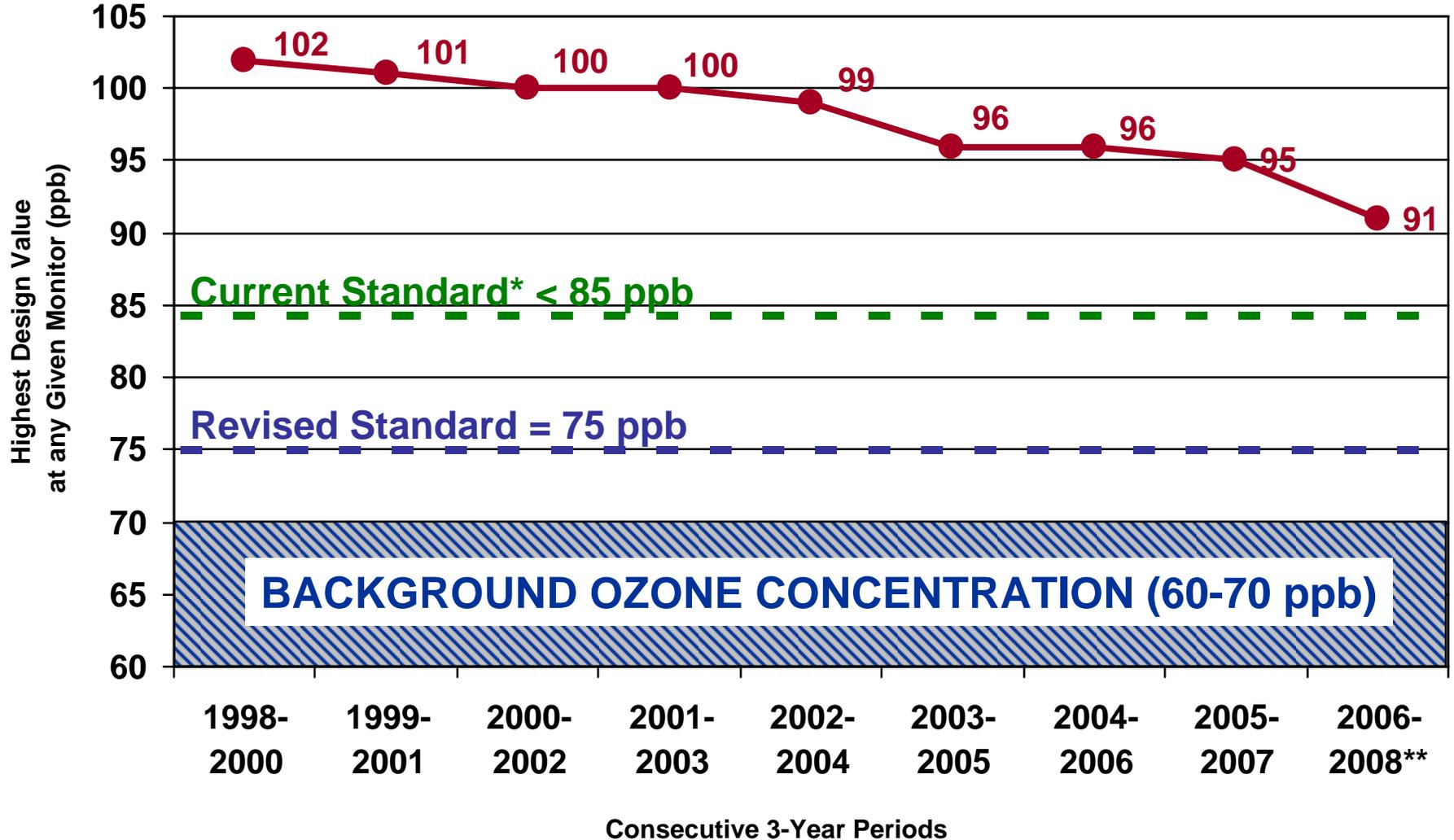


\* Date current as of October 2, 2008

\*\* Attainment Goal - According to the US EPA National Ambient Air Quality Standards, attainment is reached when there are no more than 3 exceedances per monitor within a consecutive 3-year period.

# 8-HOUR OZONE STANDARD\*

## DFW Nonattainment Area

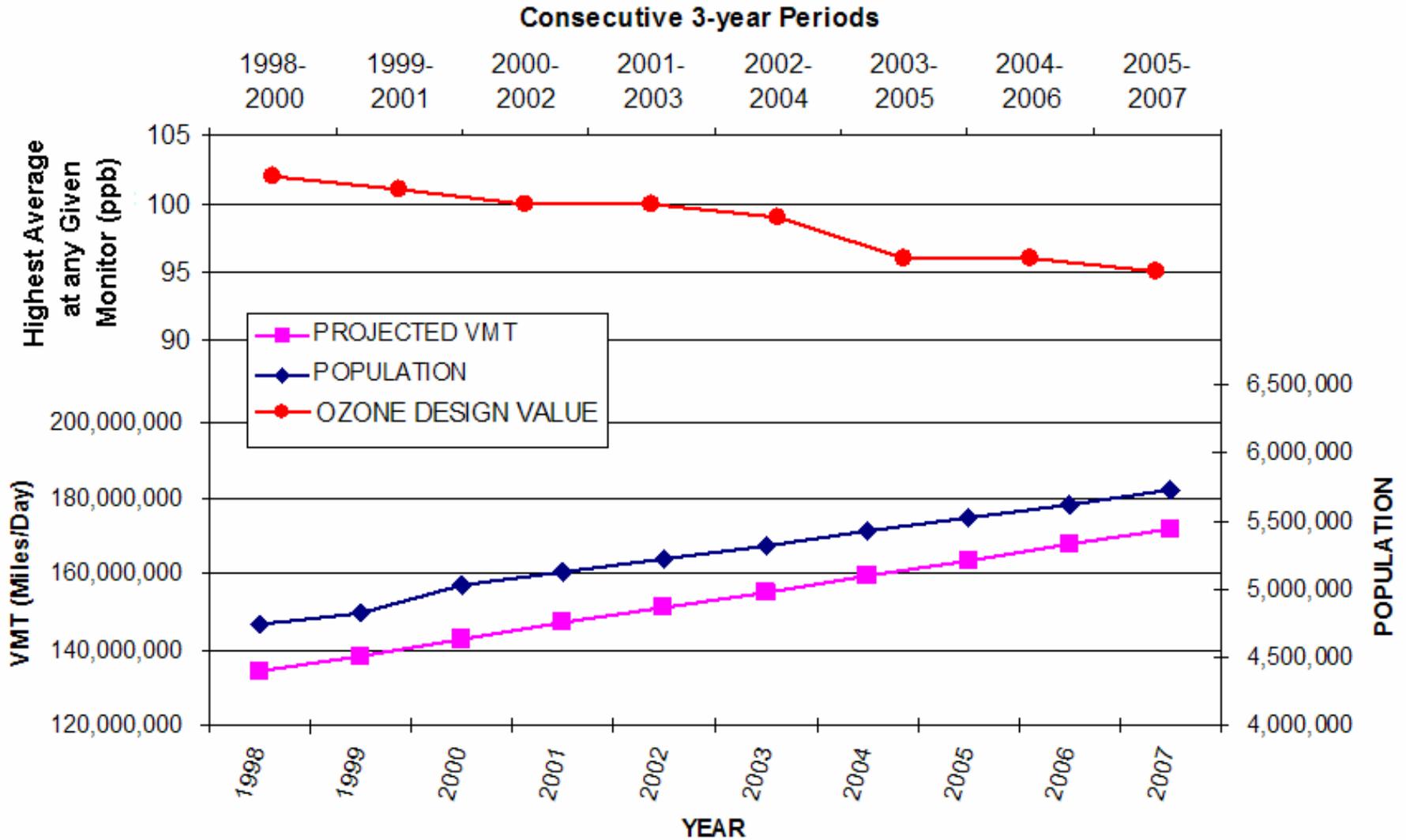


\*Attainment Goal - According to the US EPA National Ambient Air Quality Standards, attainment is reached when, at each monitor, the three-year average of the annual fourth-highest daily maximum 8-hour average ozone concentration is less than 85 parts per billion (ppb).

\*\*Ozone Season has not yet concluded. Data current as of 10/2/08

# DFW OZONE NONATTAINMENT AREA

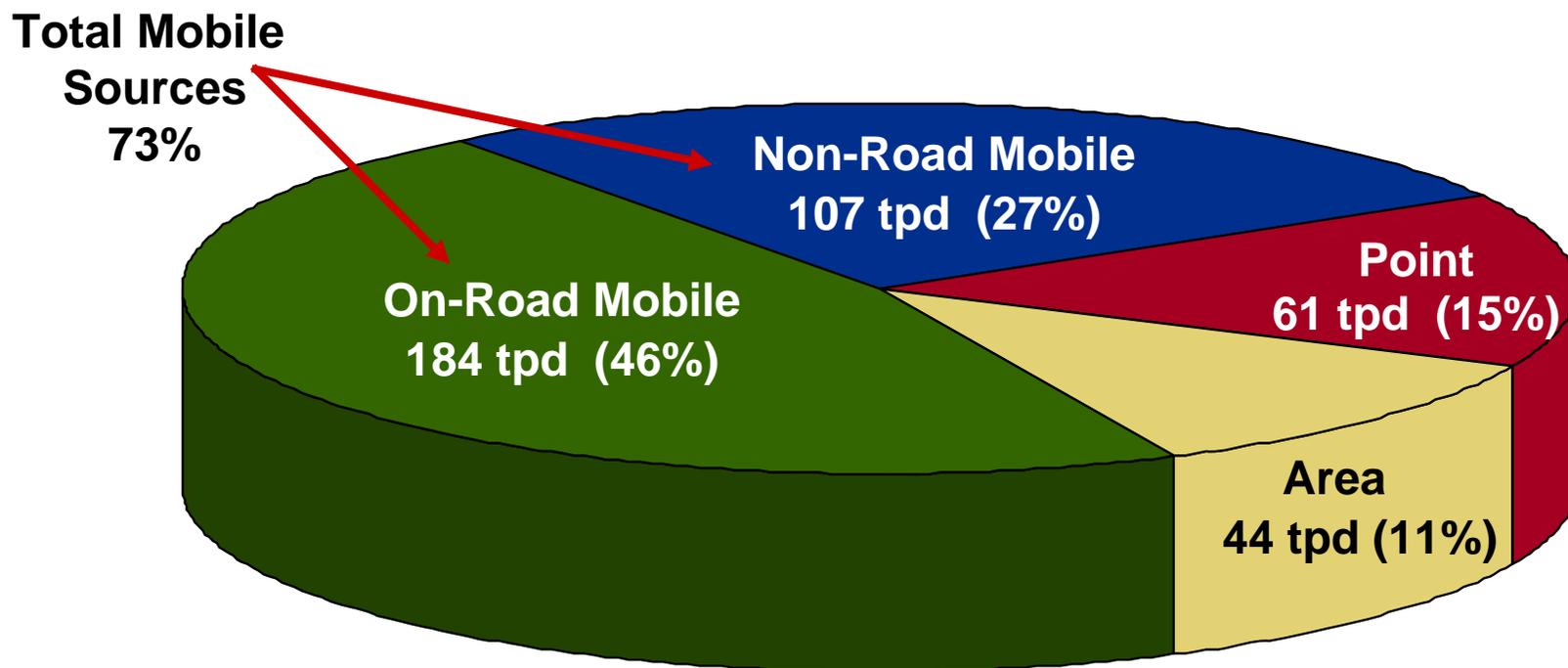
## Ozone Versus Regional Growth Trends



# DFW NONATTAINMENT AREA

## 2009 Nitrogen Oxide (NO<sub>x</sub>) Emission Inventory

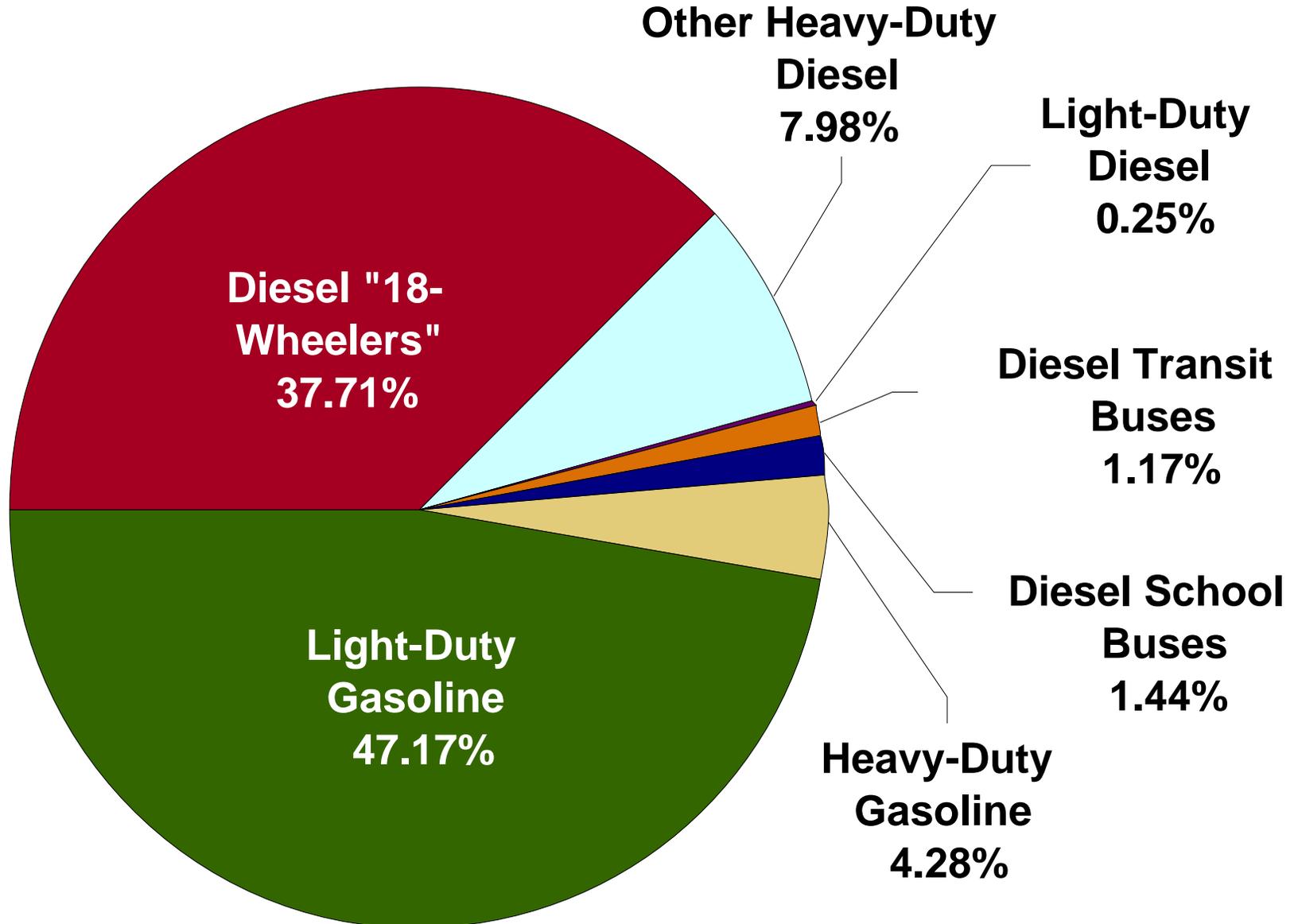
### Emission Source Category Estimates



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

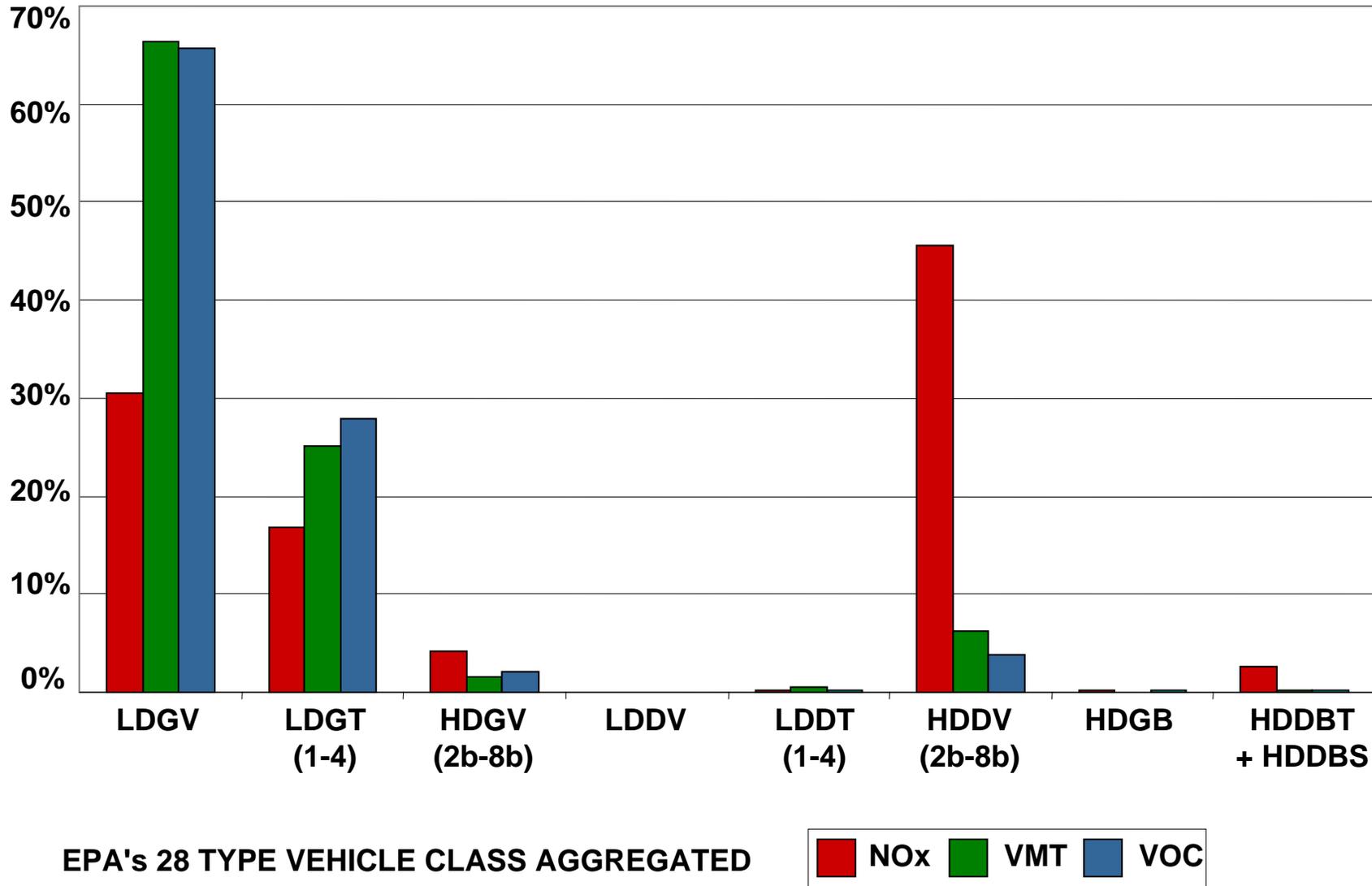
# DFW NONATTAINMENT AREA

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



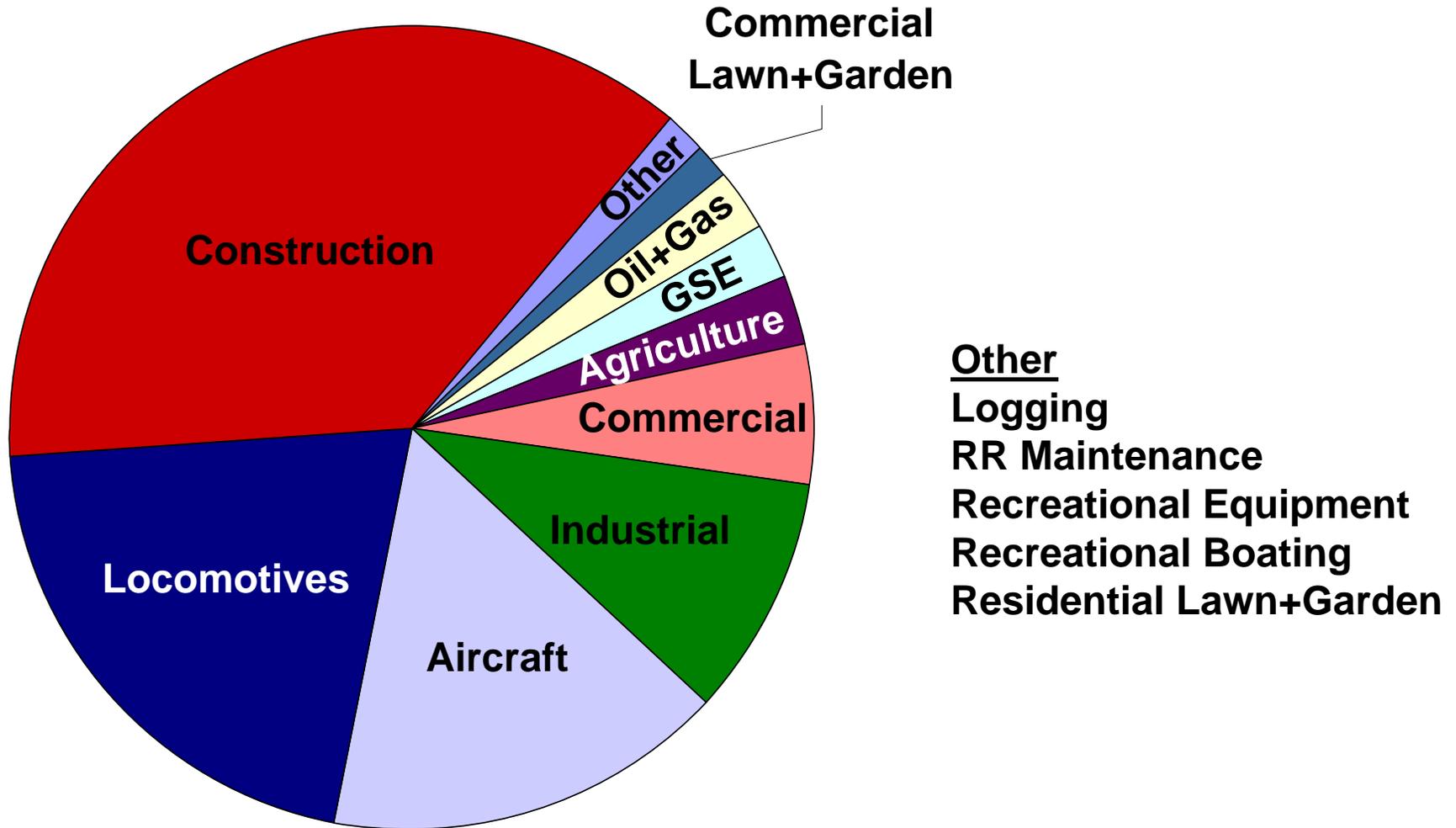
# DFW NONATTAINMENT AREA

## 2009 On-Road Emissions Inventory



# DFW NONATTAINMENT AREA

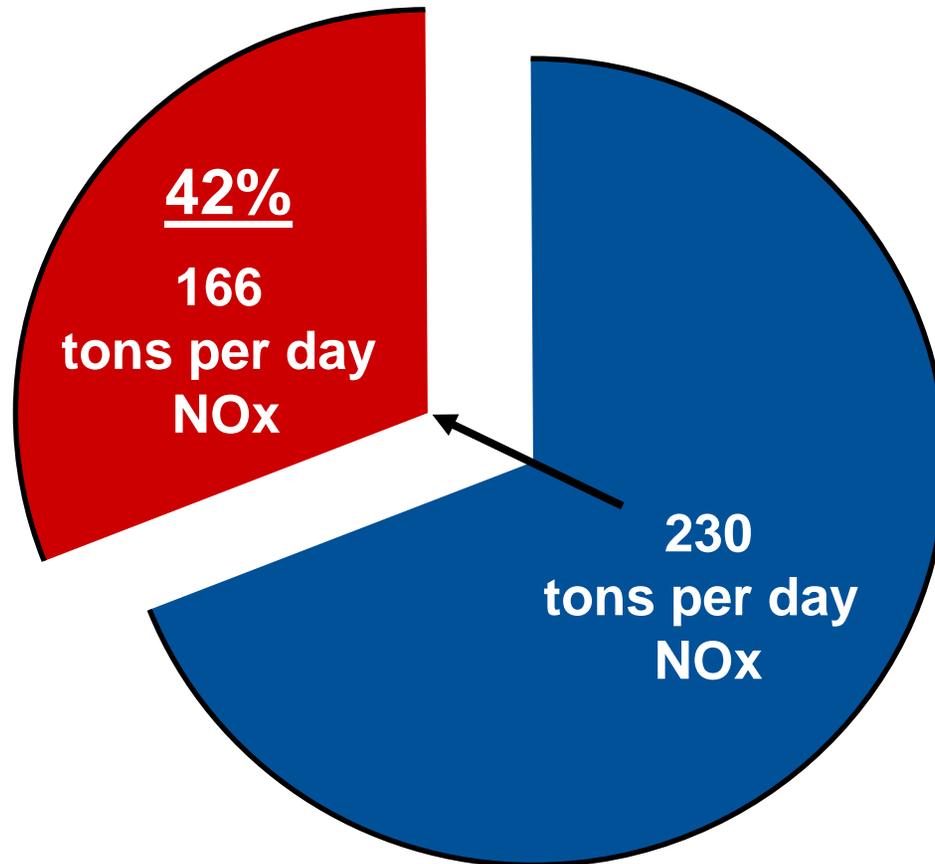
## 2009 Non-Road NO<sub>x</sub> Emissions Inventory



# DFW NONATTAINMENT AREA

## NO<sub>x</sub> Reduction Required to Reach Attainment

Total Anthropogenic NO<sub>x</sub> = 396 Tons Per Day



# NORTH TEXAS AIR QUALITY

## Green House Gas Emissions

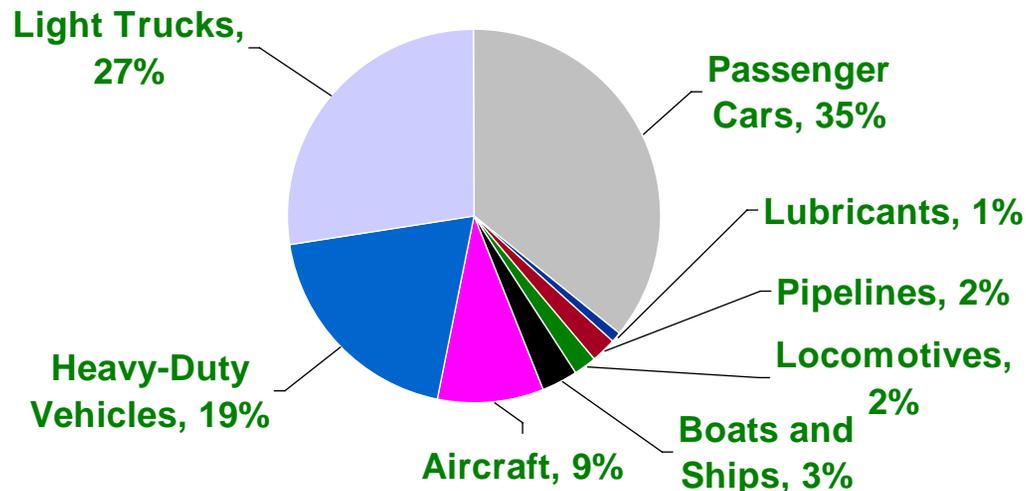
Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2003  
("U.S. GHG Inventory") published by the US EPA

In 2003, the transportation sector accounted for approximately 27 percent of total U.S. GHG emissions, up from 24.8 percent in 1990.

Light-Duty vehicles are currently the largest sources of transportation GHGs.

Aircraft are the largest source of non-road transportation GHGs.

### Transportation Greenhouse Gas Emissions By Sources



# **NORTH TEXAS AIR QUALITY**

## **Light-Duty Vehicle Emissions**

<b><u>Component</u></b>	<b><u>Emission Rate (g/mi)</u></b>
<b>Passenger Car</b>	
<b>NOx</b>	<b>1.39</b>
<b>Hydrocarbons (VOCs)</b>	<b>2.80</b>
<b>CO</b>	<b>20.9</b>
<b>CO2</b>	<b>417.3</b>
<b>Light-Duty Truck</b>	
<b>NOx</b>	<b>1.81</b>
<b>Hydrocarbons (VOCs)</b>	<b>3.51</b>
<b>CO</b>	<b>27.7</b>
<b>CO2</b>	<b>521.6</b>

**CO2 emissions from a gallon of gasoline = 19.4 pounds/gallon**

# **NORTH TEXAS AIR QUALITY**

## **Mobile Source Emission Reduction Strategies**

### **Transportation Control Measures (TCM)**

**Intersection Improvements  
Bicycle/Pedestrian Facilities  
HOV Lanes  
Rail  
Grade Separations  
Park-n-Ride  
Vanpools**

### **Transportation Emission Reduction Measures (TERM)**

**Intelligent Transportation Systems  
Traffic Signal Improvements  
Bottleneck Removal**

# **NCTCOG AIR QUALITY INITIATIVES**

# NCTCOG AIR QUALITY PROGRAMS AND CLEAN VEHICLE INITIATIVES

**DFW Clean Cities Program**



**Clean Fleet Vehicle Policy**



**North Central Texas Clean School Bus Program**



**North Texas Clean Air Coalition (NTCAC)**

# **VEHICLE ASSISTANCE PROGRAM**

## **AirCheckTexas Drive a Clean Machine Program**

**Grant from Texas Commission Environmental Quality (TCEQ)  
Funds – \$22,000,000 Annually for North Texas**

**Helps Low-Middle Income Residents Repair or Replace  
Vehicles that Do Not Pass Inspection or are  $\geq$  10 Years  
Old Up to \$600 for Repair or \$3,500 for Replacement**

**December 12, 2007 – September 18, 2008**

**8,178 Vehicles Retired and Replaced**

**1,616 Repaired**

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



# EMISSIONS ENFORCEMENT STRATEGIES

## Regional Emissions Enforcement Program

**Reduce Number of Fictitious/Counterfeit Inspection Certificates:**

**Identify Stations/Inspectors Performing Improper Inspections**

**Conduct Covert Operations**

**Prosecute Those Responsible for Counterfeit Inspection Certificates**

**Enforce Truck Lane Restrictions**

**Support Anti-Idling Restrictions**

**Enforce Smoking Vehicle Statute**

**Train Local Law Enforcement Officers**



## Emissions Information System

**Assist in the Enforcement of Fictitious/Counterfeit Inspection Certificates and Smoking Vehicles**

**Internet-based, Password-Protected and Available to Law Enforcement Agencies 24/7**

**Cross References 5 Different Databases**

# EMISSIONS ENFORCEMENT STRATEGIES

## Locally Enforced Idling Restrictions

**No 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**

**Each City and County Must Adopt Rule**

**No Driver Using Vehicle's Sleeper Berth May Idle In:**

**A Residential Neighborhood**

**A School Zone**

**Within 1,000 Feet of a Hospital or School**

**Within 2-Mile Radius of an Electrified Truck Stop**

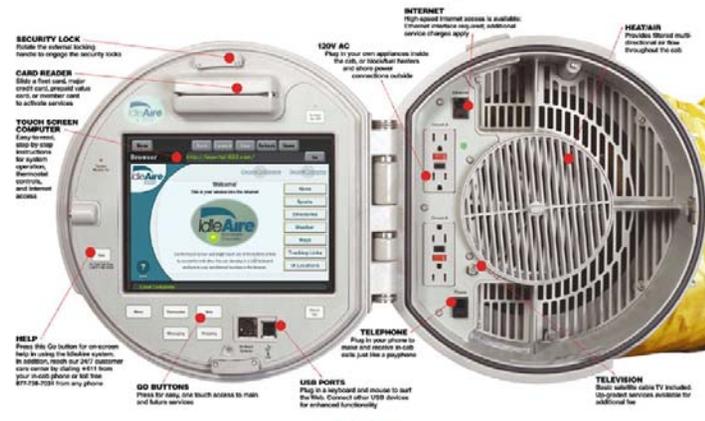


# LOCALLY ENFORCED IDLING RESTRICTIONS

## Truck Stop Electrification



IdleAire Service Delivery Module



# PAY-AS-YOU-DRIVE INSURANCE

## Pilot Program

### Participation

**High Level of Response to a Mileage-Based Insurance Program**

**1996 or Newer Model Year Vehicles**

***TripSense*® Device is Plugged into On-Board Diagnostic (OBD) to Collect Data**

**Financial Incentive for Reducing Mileage**  
**\$50 for Participation**  
**+ \$25 Per 5% Reduction in Miles**

### Results

**PAYD Program Decreased Participant Miles Driven by An Average of 5%, or 560 Miles Per Year**

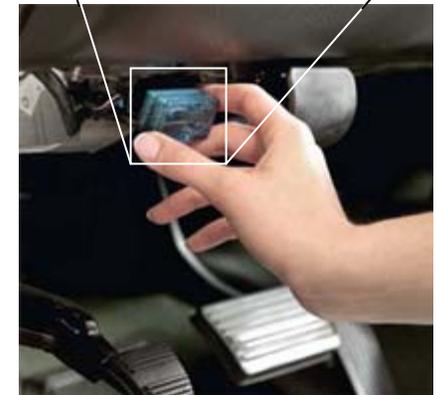


Photo source: [www.atomerochbitar.se](http://www.atomerochbitar.se)

# OTHER INNOVATIVE PROGRAMS

## North Texas Green & Go Clean Taxi Partnership

### Strategy

Replacement of Taxicabs with Green Vehicle Options  
Launched September 2, 2008

### Program Partners

City of Dallas  
City of Fort Worth  
Dallas-Fort Worth International Airport  
EPA Office of Air Quality Policy and Standards  
EPA Office of Transportation and Air Quality  
EPA Region 6  
North Central Texas Council of Governments  
Texas Commission on Environmental Quality  
The Sue Pope Fund



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

# OTHER INNOVATIVE PROGRAMS

## Regional Smoking Vehicle Program

### Strategy

To Advise Vehicle Owners of Possible Emission Problems  
Local Citizen Identification Efforts



Don't Choke, Call #SMOKE

### Reporting Methods

Online at [www.smokingvehicle.net](http://www.smokingvehicle.net)

#SMOKE (#76653) from Your Wireless Phone

817-704-2522 from a Landline Phone

### Successes

Received Over 6,800 Notifications in First Year

# OTHER INNOVATIVE PROGRAMS

## Air North Texas Awareness Campaign

### Strategy

A Voluntary Effort and Creative Platform  
Regional Brand to Generate Public Awareness  
To Foster Behavioral Changes that Improve Air Quality  
All-Inclusive Educational Portal on Air Quality

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



**clean air  
for all**

go green. breathe clean. your logo here

Let's face it, we all want the same thing... clean air. With your help and the support from the Air North Texas community of individuals and organizations in the North Texas region, we can make living healthier and breathing clean a breeze. Sign up today with Air North Texas to become a part of change in air quality.

Air North Texas is a public awareness campaign that encourages residents of North Texas to make clean air choices. 2011-12.

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



inflation\_campaign 7/18/08 4:53 PM Page 3



**When it comes to our air,  
inflation is a good thing.**

By keeping your tires properly inflated you'll increase gas mileage,  
decrease your emissions and save money.  
And that's a very good thing.

For more tips on how you can do your part click on [airnorthtexas.org](http://airnorthtexas.org)



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



Go Green. Breathe Clean.

# OTHER INNOVATIVE PROGRAMS

## Additional Initiatives\*\*

**Aviation Efficiencies**

**Clean Vehicles**

**Construction Equipment Policy**

**Employer Trip Reduction Measures**

**EPA's SmartWay Initiative**

**Green Cement Procurement Policy**

**Idling Reduction Initiative**

**Low-Emitting-Diode Traffic Signal Replacement**

**Public Entity Clean Fleet Policy**

**Sustainable Development**

**Texas Emissions Reduction Plan Partnership**

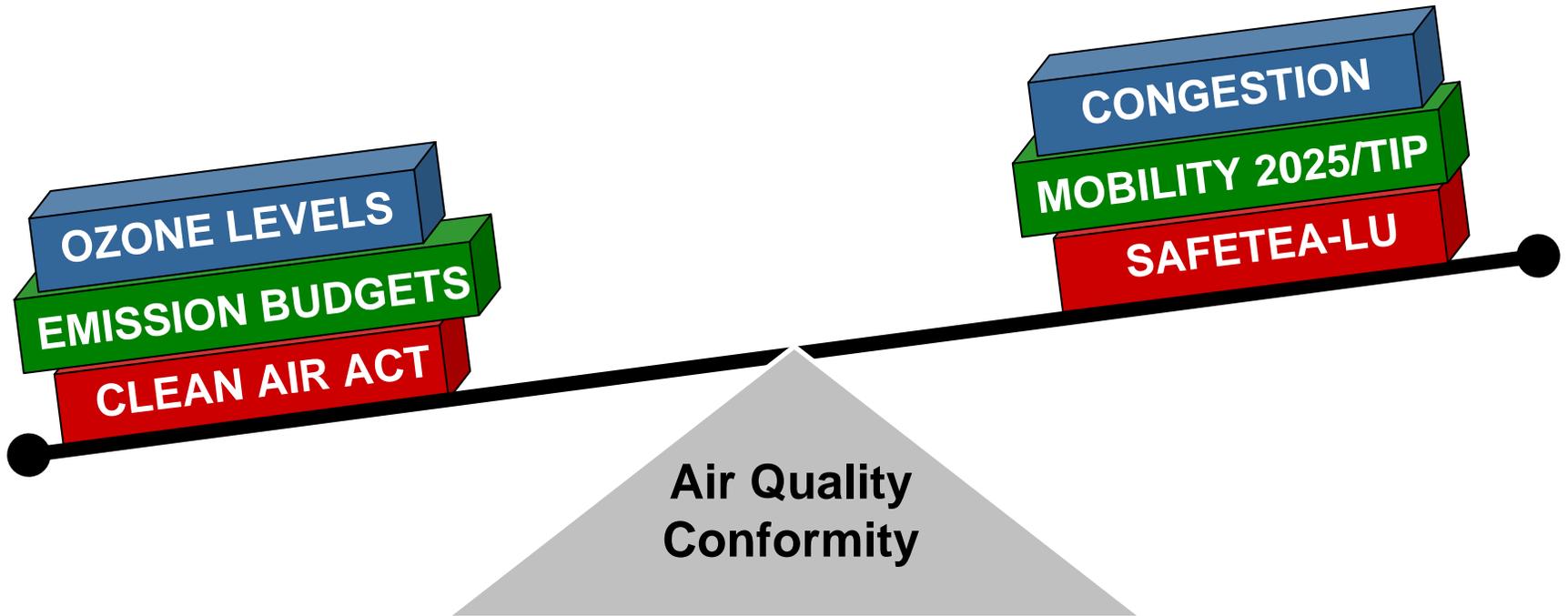
**\*\* See NCTCOG's Regional Mobility Initiatives on Air Quality  
for More Programs**

# NORTH TEXAS AIR QUALITY

## The Conformity Connection

**AIR QUALITY GOALS**

**TRANSPORTATION/  
MOBILITY GOALS**



# TRANSPORTATION AND AIR QUALITY

## Contact Information

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[www.nctcog.org/trans/programs/ej](http://www.nctcog.org/trans/programs/ej)