

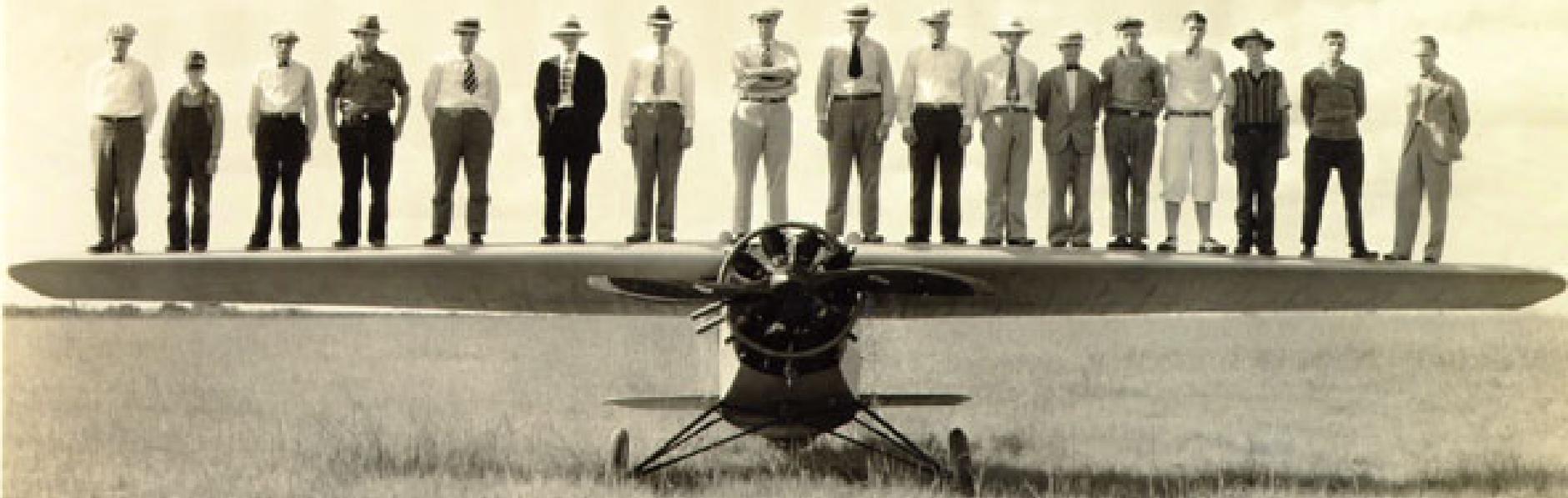


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Our Vision – Healthy Kansans living in safe and sustainable environments.

# Wichita Area Ozone Information Meeting

June 26, 2008



**Tom Gross, Kansas Department of Health and Environment,  
Bureau of Air and Radiation**

# Questions to answer

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- What is ozone
- What are it's health effects
- Where does it come from
- History of ozone standards
- Wichita's ozone history
- Efforts to reduce ozone in Wichita
- How and when will KDHE make decision on Wichita area designation?



# Ground Level Ozone Formation



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Pollutants "bake" together in direct sunlight forming ozone.

# Health Effects of Ozone

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- Irritation of the respiratory system
- Reduced lung function
- Aggravation of asthma and allergies
- Permanent lung damage after repeated exposure
- Can especially affect children, elderly, and people with existing health conditions



# Tools to Study Ozone Pollution

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- Monitors
- Emission inventory
- Computer modeling
- Meteorological analysis
  - Back trajectory analysis
  - Satellite imagery



# Ozone Standard History

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- 1971 - EPA established a 1-hour ozone standard of 0.085 ppm
- 1979 EPA revised the 1-hour standard to 0.12 ppm
- 1997 EPA released the new 8-hour ozone standard of 0.085 ppm
- 2003 areas transitioned from 1-hour to 8-hour standard of 0.085ppm
- March 12, 2008 – EPA announced final 8-hour ozone standard of 0.075 ppm



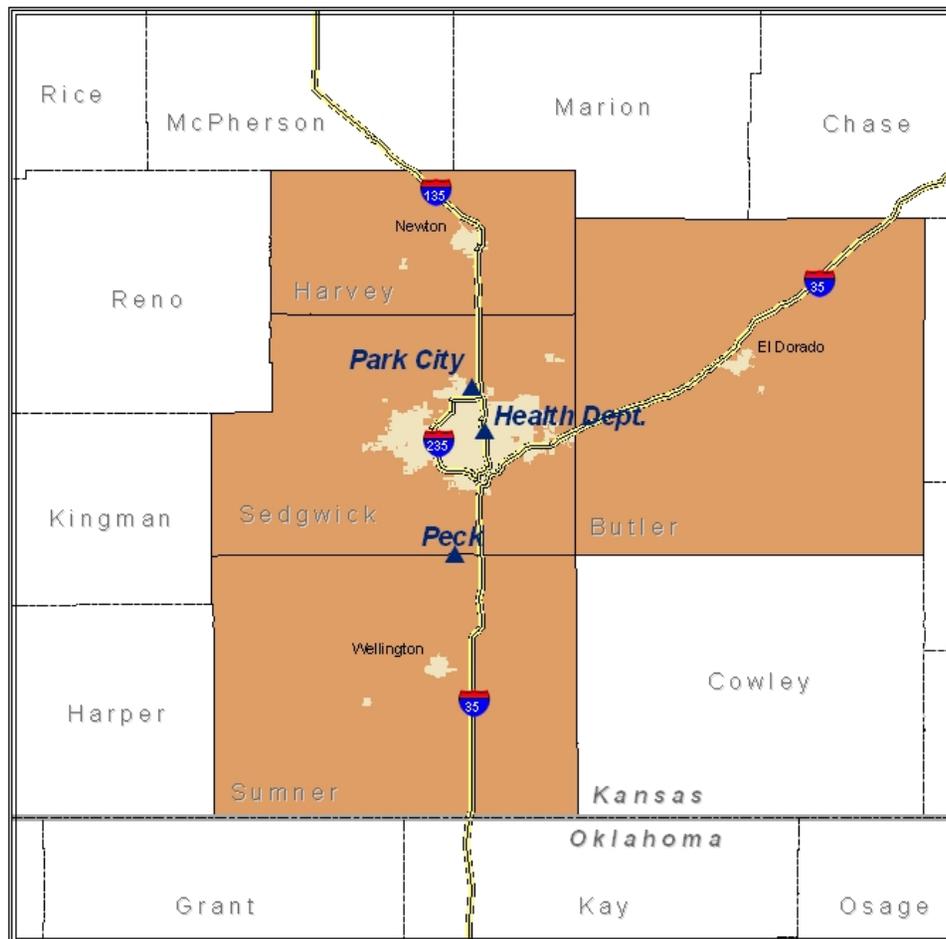
# 2008 Ozone Standard

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- Primary standard set at 0.075 ppm
- Secondary standard also 0.075 ppm
- Must be over 0.075 ppm to violate standard
- Violation based on Design Value
  - Worst monitor in planning area
  - 4<sup>th</sup> high value
  - Based on a rolling three-year average



# Wichita MSA O<sub>3</sub> Monitoring Network



## Legend

- ▲ Ozone Sites
- Interstate Highway

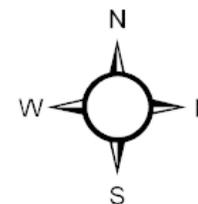
## Design Values (ppm)

**2005-2007**

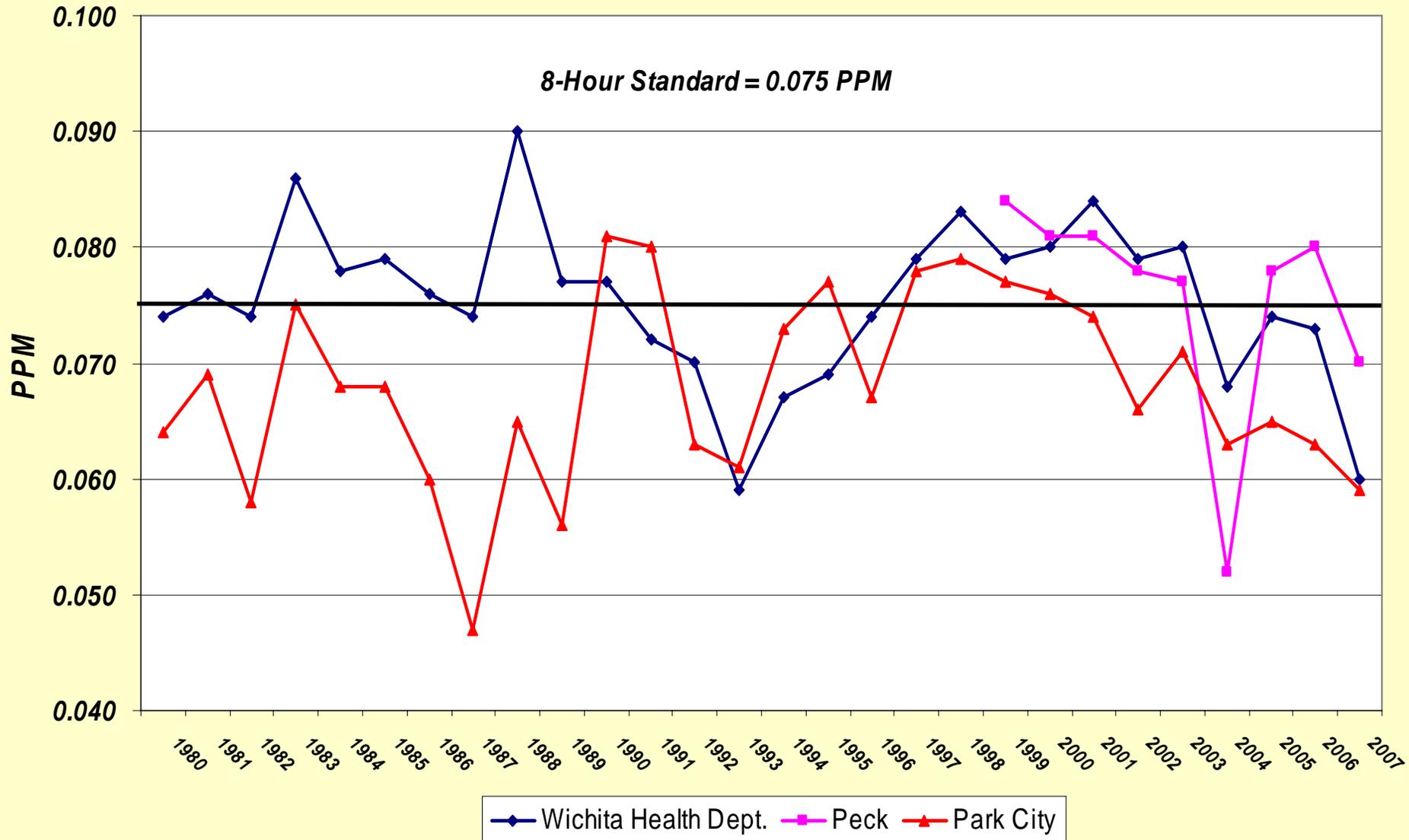
*Health Dept.* = 0.069

*Park City* = 0.062

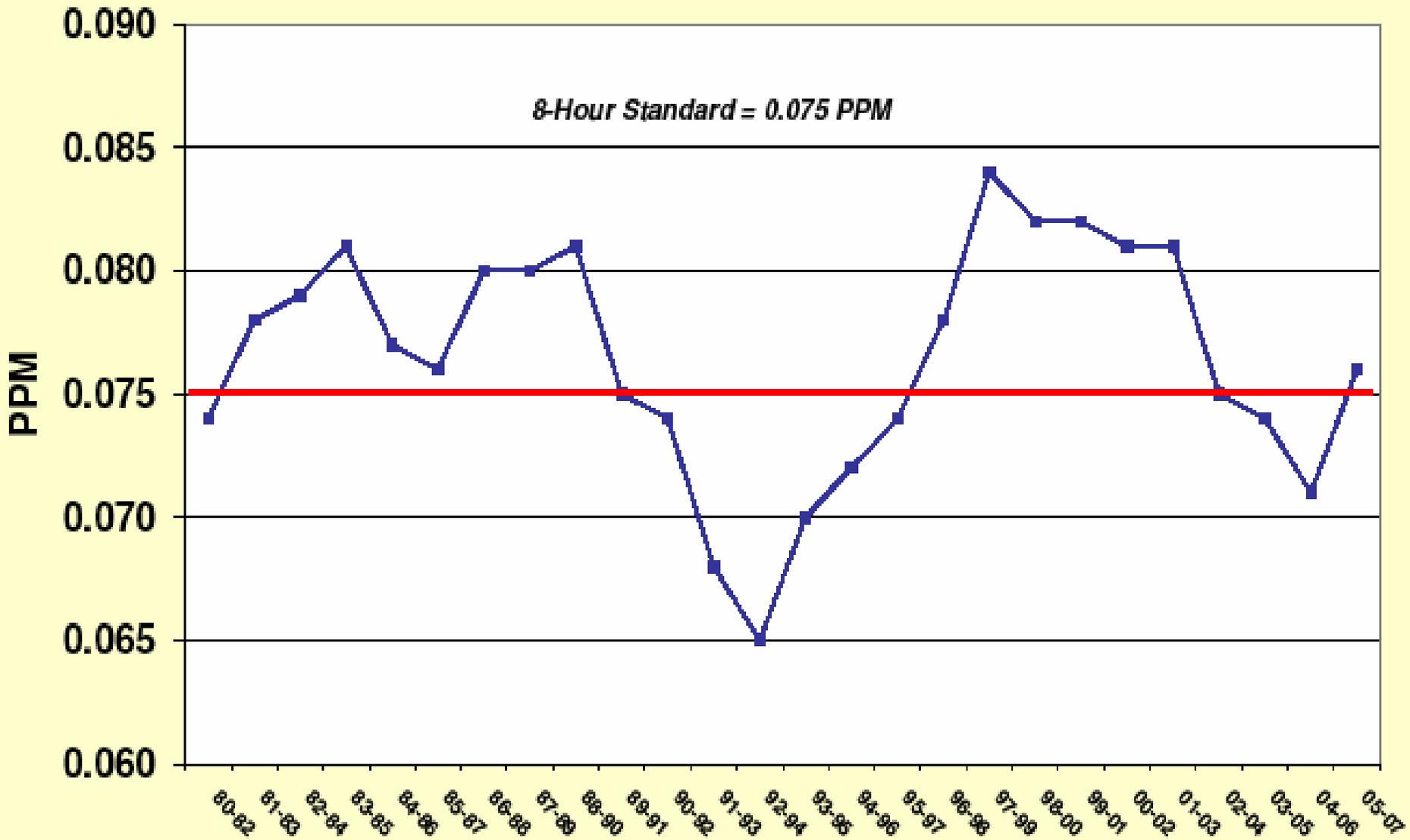
*Peck* = 0.076



# Wichita Area Ozone 4th High 8 Hour Average



# 8-Hour Ozone Design Values Wichita



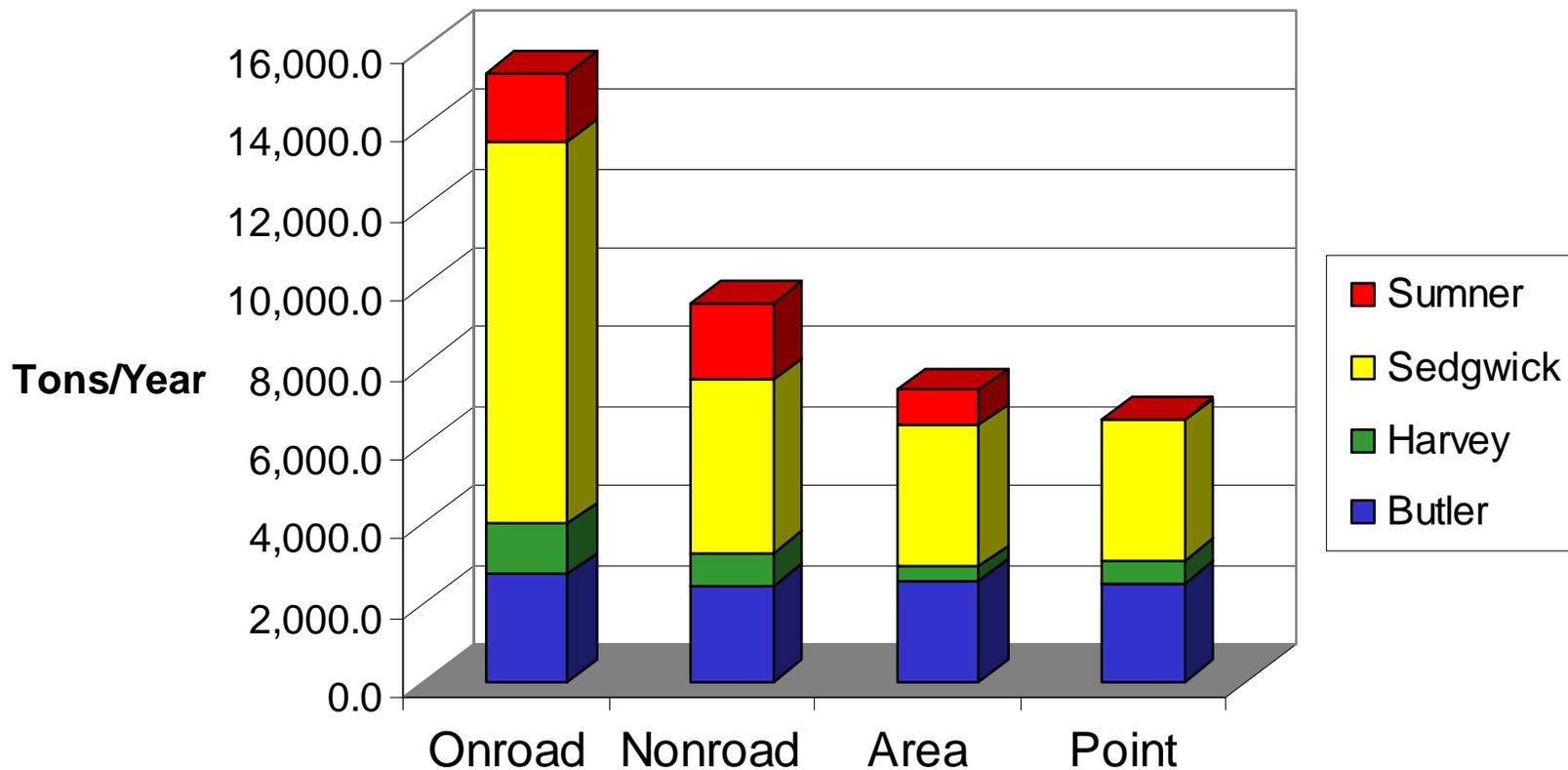
# Sources of Pollutant Emissions

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- Point Sources: Industries that have permits from KDHE
  - Power plants, manufacturing, asphalt plants
- Mobile Sources:
  - On-road – cars, trucks, motorcycles, etc.
  - Off-Road – construction equipment, tractors, planes, trains, boats
- Area Sources: All other sources
  - Small businesses
  - Homes
- Natural Sources:
  - Trees, plants

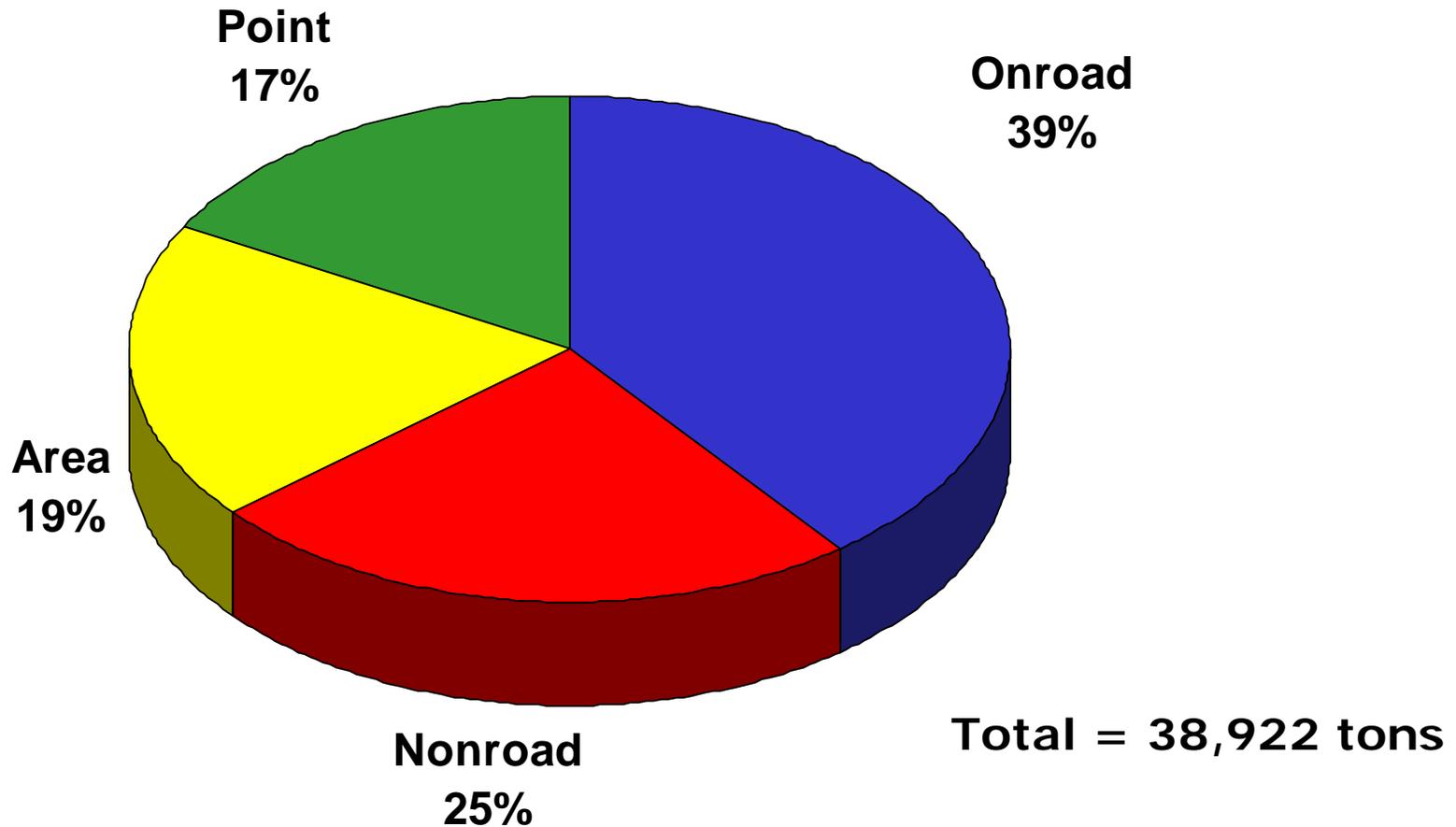


# Wichita MSA NOx Emissions

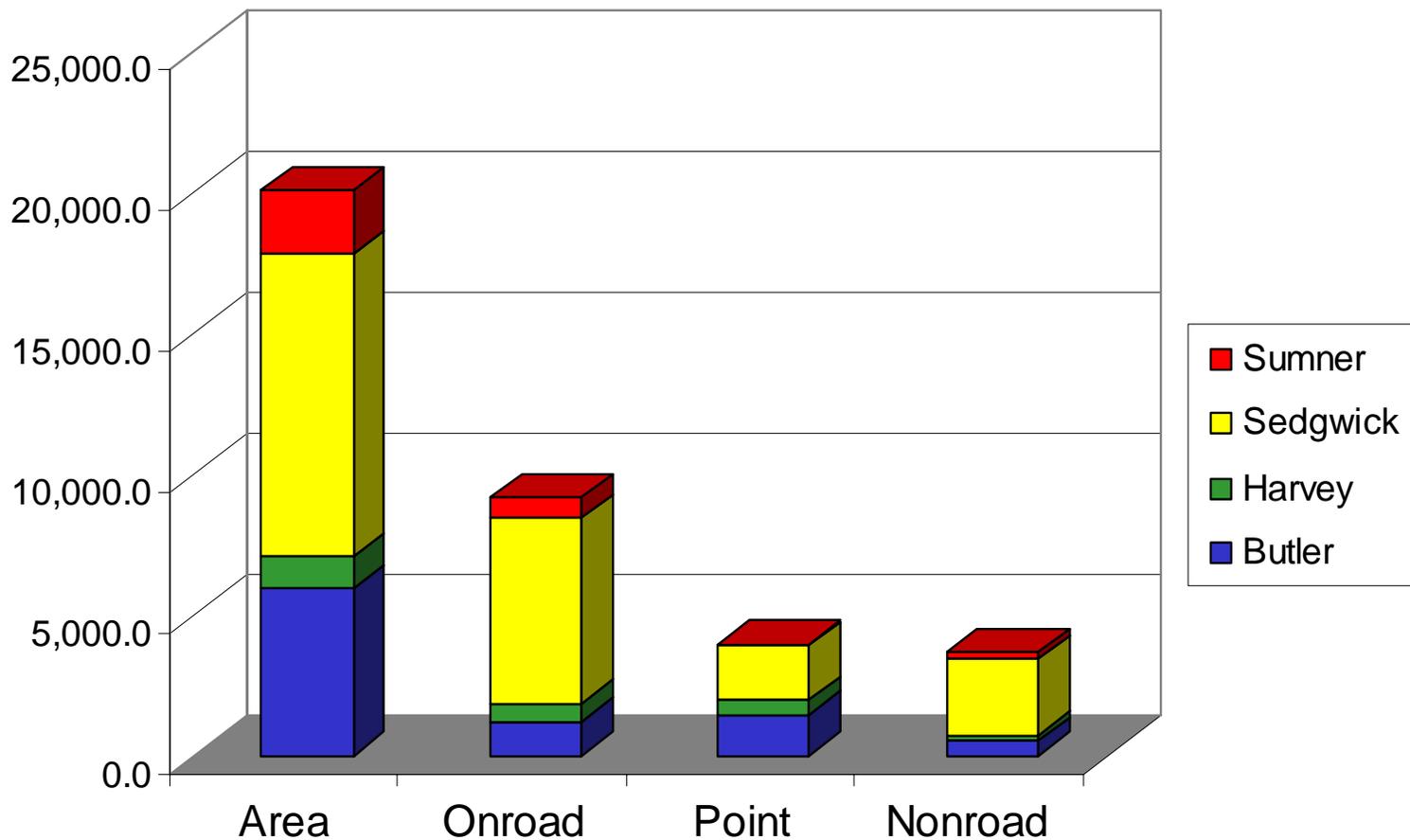


Source: 2002 National Emissions Inventory

# Wichita MSA NOx Emissions

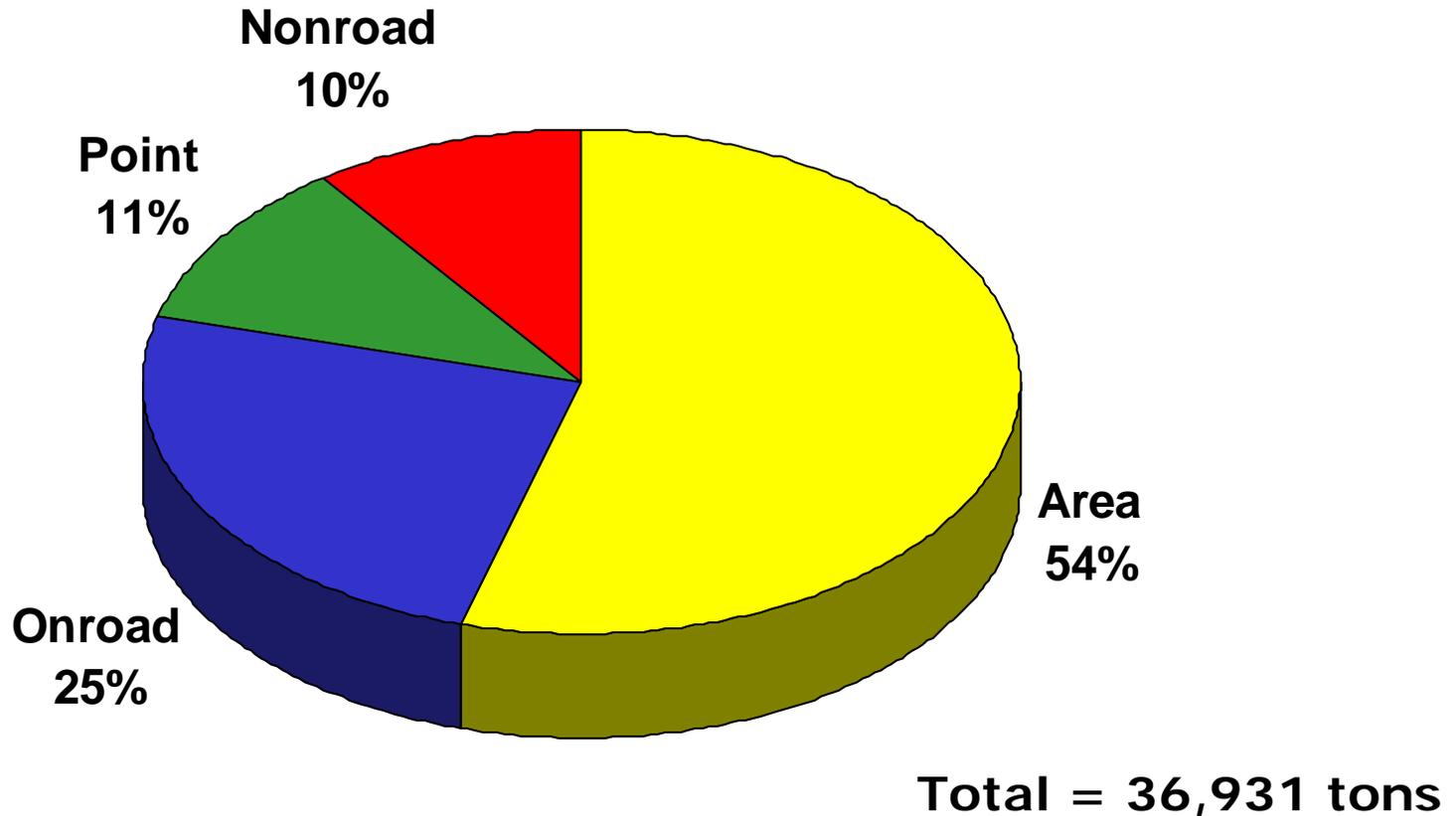


# Wichita VOC Emissions by Sector and County



Source: 2002 National Emissions Inventory

# Wichita MSA VOC Emissions



# Causes of Wichita Ozone

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- Natural background
- Ozone or chemical precursors transported in
  - Oklahoma City, Tulsa, Dallas, St. Louis
- Homegrown
  - VOC and NO<sub>x</sub> emissions from Wichita businesses, homes and cars



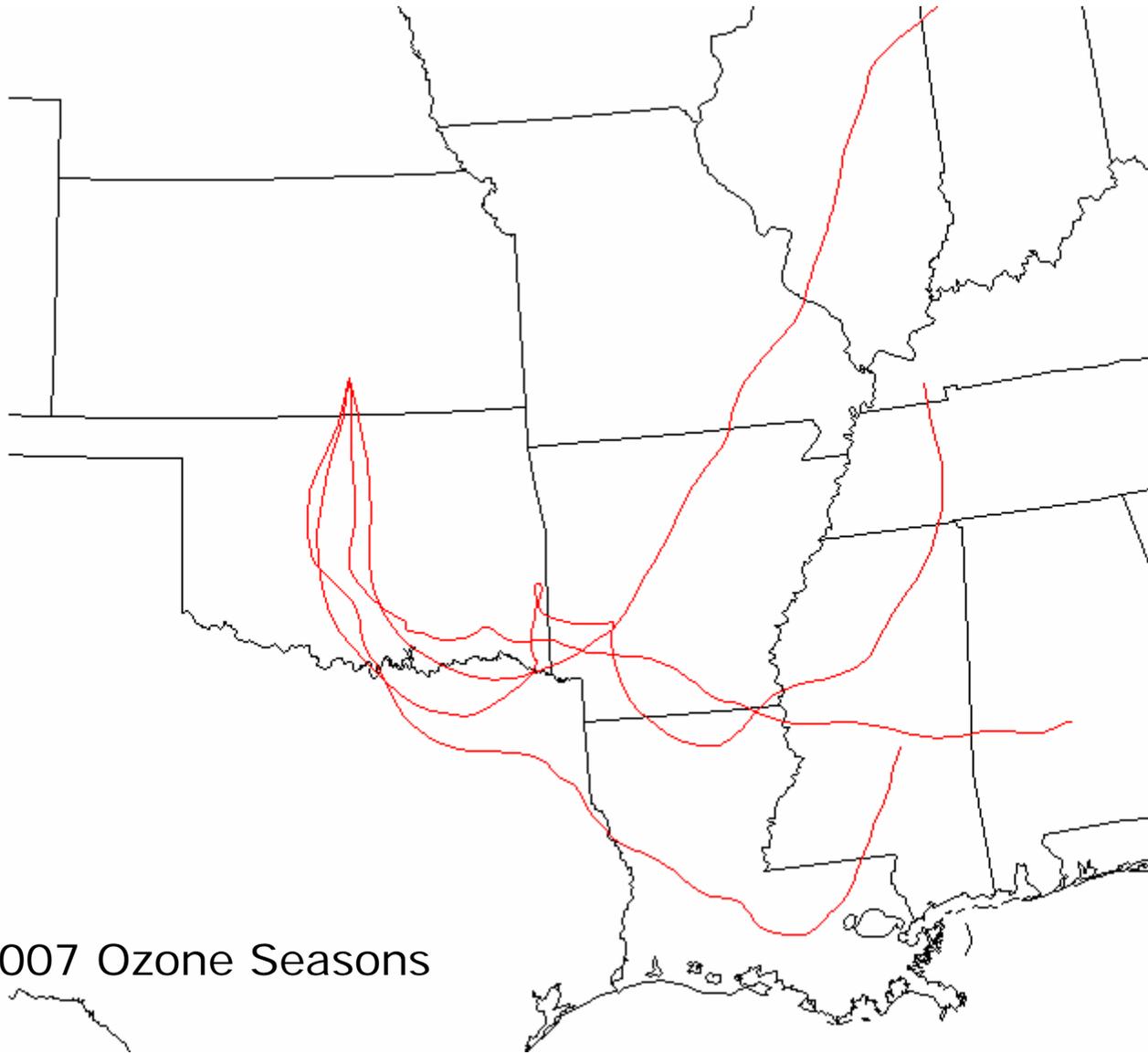
# Positive and Negative Influences on Wichita's Ozone Levels?

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- Weather
- Emission Reduction Programs
  - Clean Air Interstate Rule
  - Oklahoma Early Action Compacts
  - Texas and Missouri SIPs
  - Tier 2 Vehicle and fuels standards
  - Vehicle mileage standards (CAFE)
  - Heavy Duty Diesel rule
  - Regional Haze rule
  - Voluntary actions

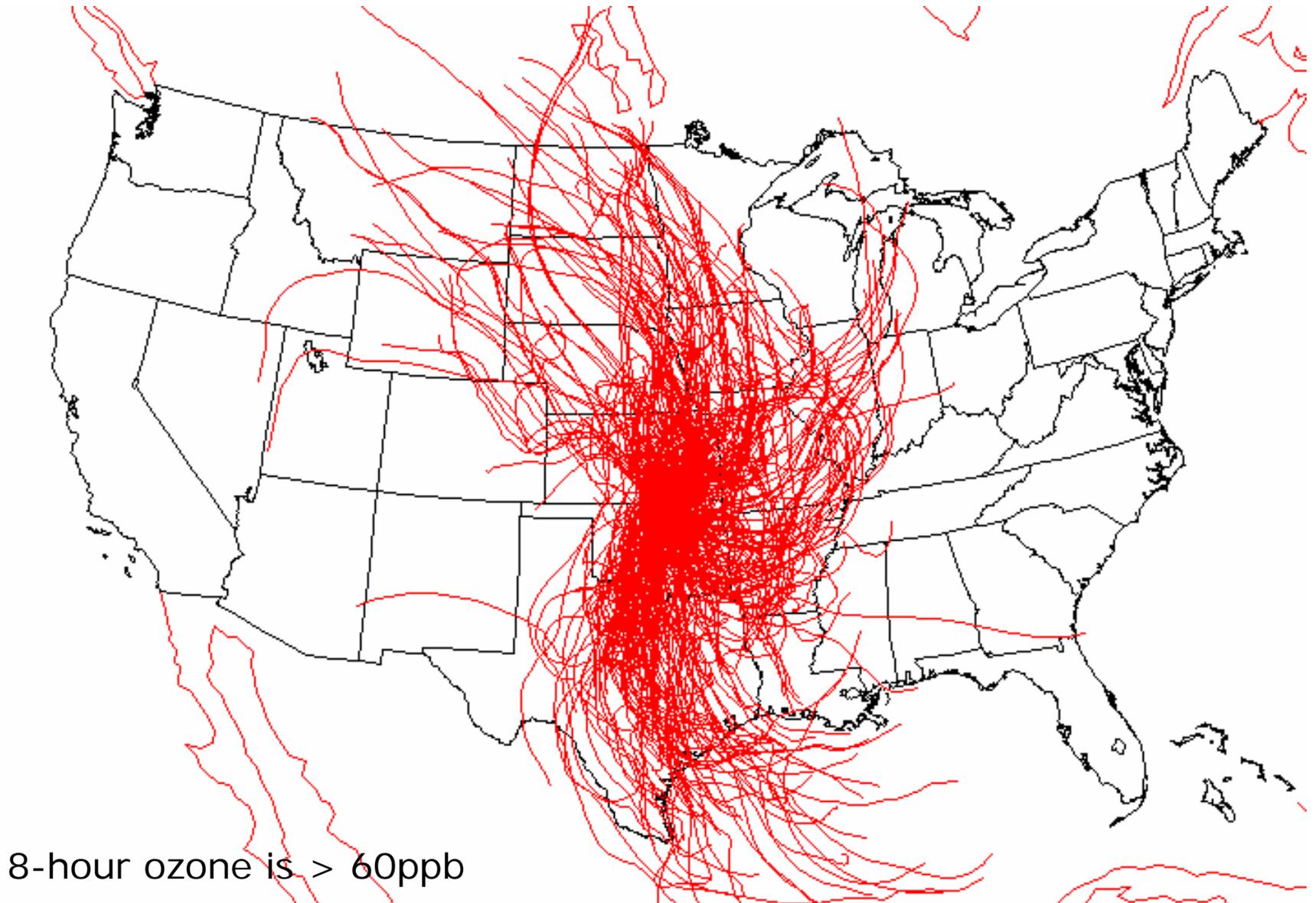


# Wichita High Ozone Day Back Trajectories

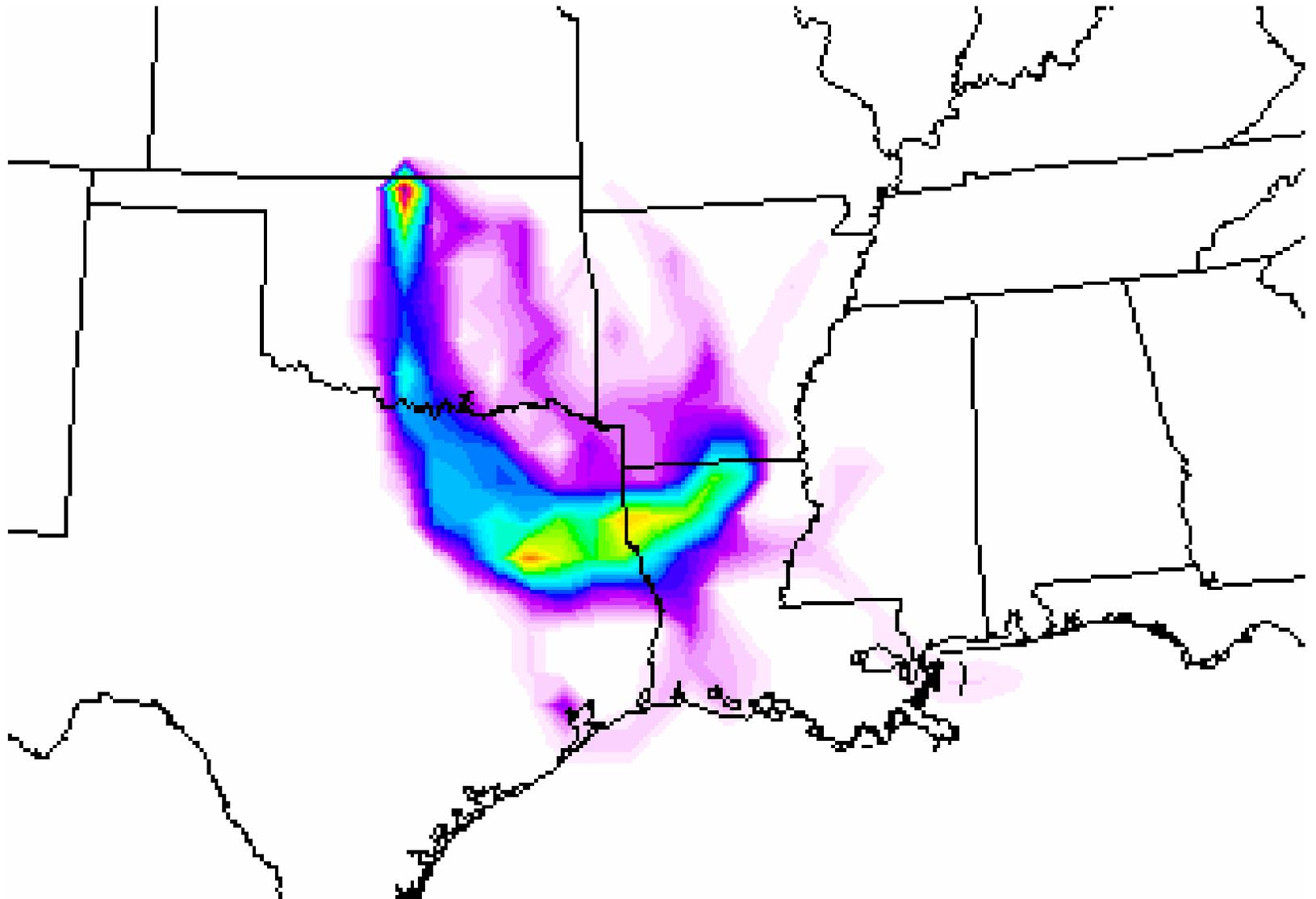


2005-2007 Ozone Seasons

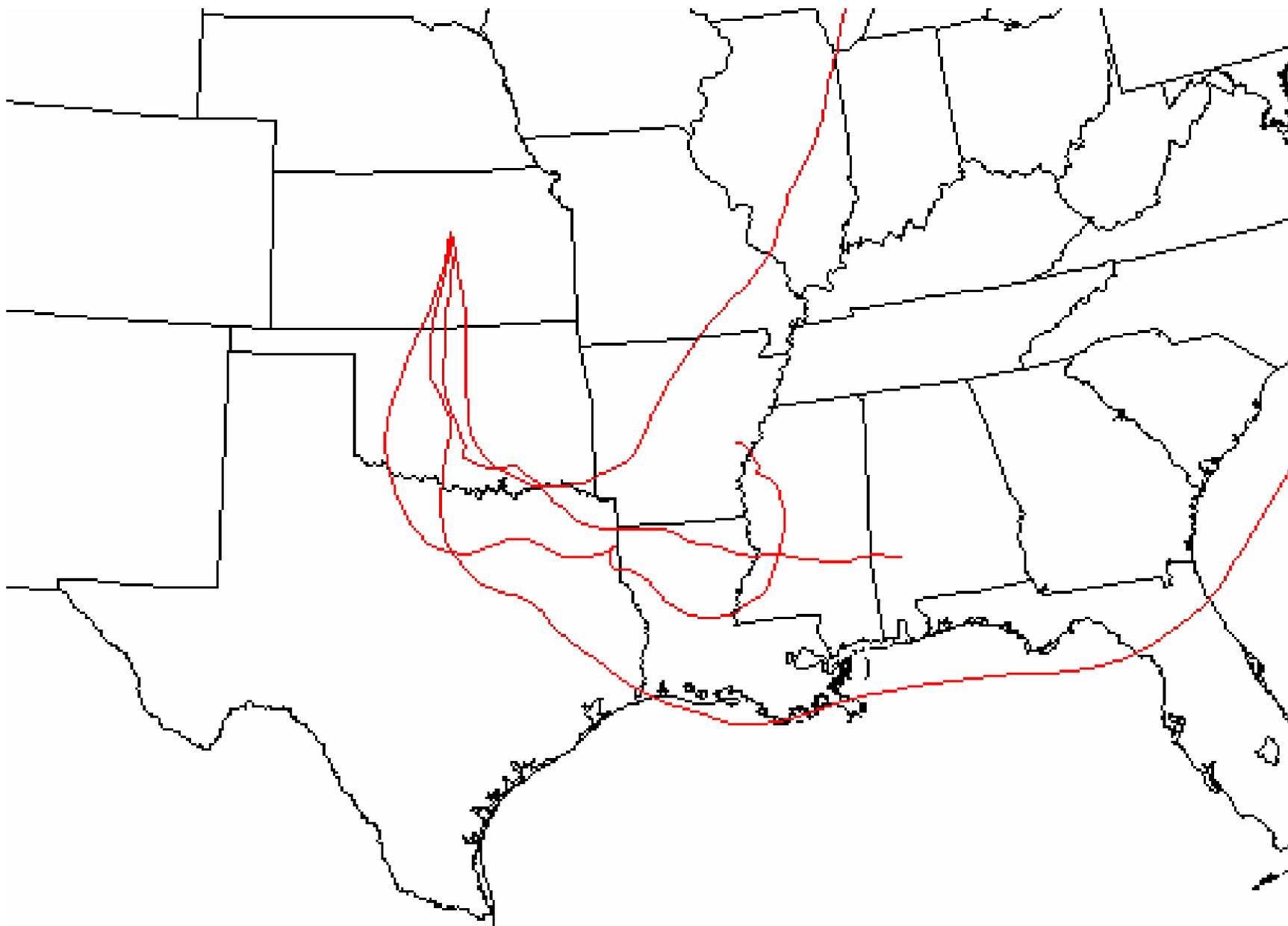
# Back Trajectories for 2005-2007

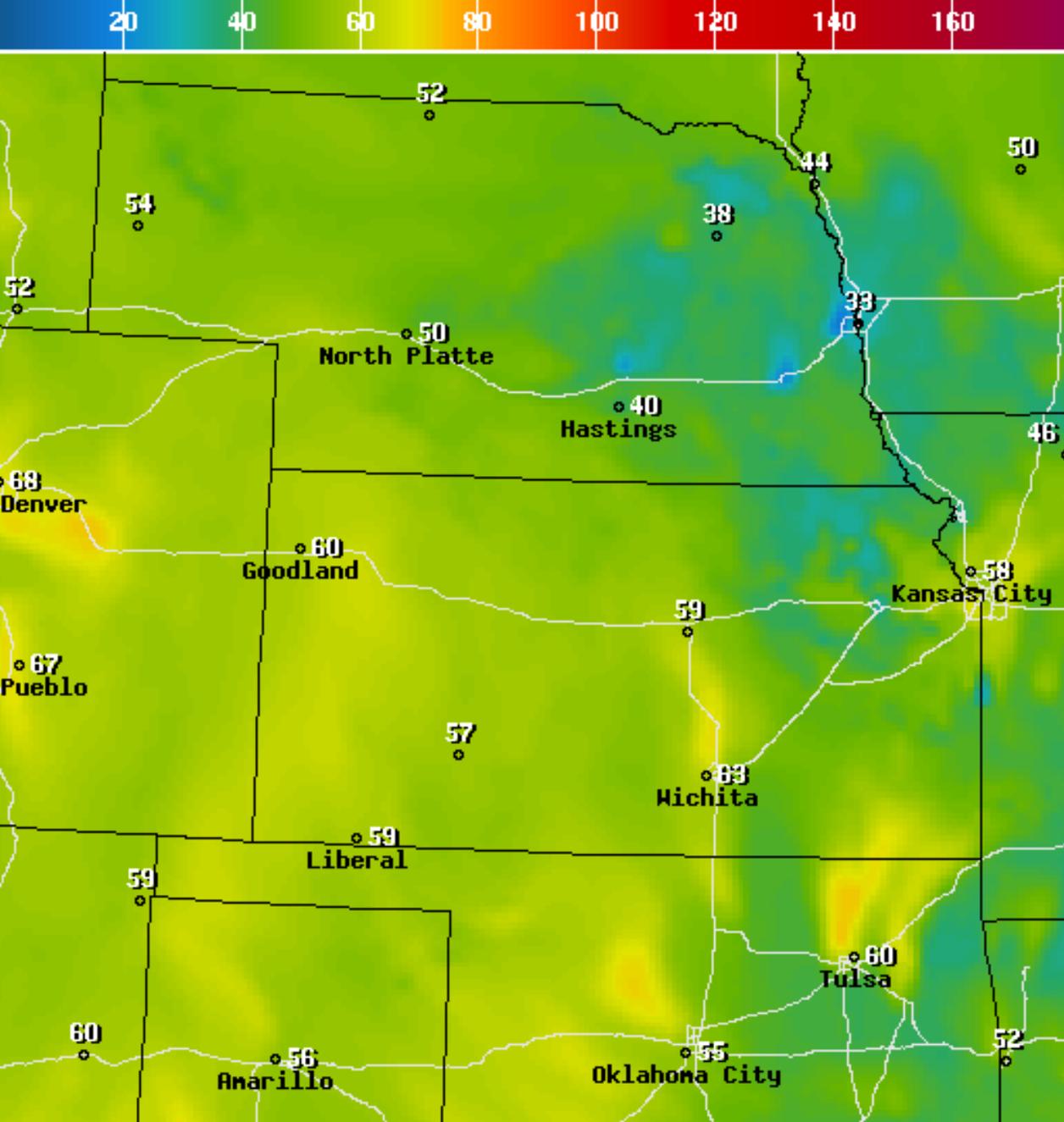


# Wichita High Ozone Days Back Trajectory Cluster



# Salina High Ozone Day Back Trajectories





# NOAA Ozone Prediction for June 19, 2008

1Hr Avg Ozone Concentration(PPB) Ending Thu Jun 19 2008 3PM EDT (Thu Jun 19 2008 19Z)

# What's Been Done in Wichita?

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- Air Quality Improvement Task Force
- Public education and outreach
  - Lawn and Garden show
  - Diesel truck seminar
  - Gas cap testing
  - Billboards
  - Web site
  - Radio spots
  - Newsletter





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