

## MINUTES OF THE SENATE NATURAL RESOURCES COMMITTEE

The meeting was called to order by Chairman Carolyn McGinn at 8:30 a.m. on January 22, 2010, in Room 144-S of the Capitol.

All members were present except:

Senator Steve Morris- excused  
Senator Ruth Teichman- excused

Committee staff present:

Kristen Kellems, Office of the Revisor of Statutes  
Raney Gilliland, Kansas Legislative Research Department  
Stan Rasmussen, Senate Fellow, U.S. Army  
Grace Greene, Committee Assistant

Conferees appearing before the Committee:

Representative Tom Moxley, Kansas House of Representatives, District 38  
Tom Gross, Chief of the Monitoring and Planning Session, Bureau of Air, Kansas Department of Health and Environment (KDHE)  
Barb Downey, Flint Hills Beef Producer  
Dr. Doug Goodin, Professor of Geography, Kansas State University  
Dr. J. Pat Murphy, Kansas State Research and Extension, Kansas State University

Others attending:

See attached list.

Chairperson McGinn brought the minutes from January 14, 2010 for approval. Senator Lee made a motion to approve the minutes. Senator Bruce seconded the motion to approve the minutes. The motion carried.

Representative Tom Moxley, Kansas House of Representatives, District 38 (Attachment 1) testified regarding prescribed Flint Hills burning from his experience as a rancher. Representative Moxley stated that one key to good grass and cattle management is a late spring burn, usually in early April. This timing has been studied and recommended by about 80 years of Kansas State University research. Representative Moxley stated that he is convinced that a workable solution from all stakeholders can be developed to avoid exceeding ozone attainment regulations, including the following measures: spreading burning season out, partial burns of pastures and/or weather sensitive decisions on burning days.

Representative Moxley took questions from the Committee.

Tom Gross, Chief of the Monitoring and Planning Session, Bureau of Air, Kansas Department of Health and Environment (KDHE) (Attachment 2) testified on Flint Hills Burning. Mr. Gross addressed, specifically: ozone overview and ozone standard history, history of the Flint Hills air quality issues, emissions data, air quality impacts across Kansas, and described a smoke management plan concept.

Barb Downey, Flint Hills beef producer (Attachment 3) provided input from her experience operating a family-owned ranch of about 6,500 acres in Riley and Wabaunsee counties. Ms. Downey testified that burning is important to the tall grass ecosystem. She stated that proper and controlled burning provides long term preservation of the prairie, controls and benefits prairie native wildlife and habitat, strengthens and improves future years growth of grass, and is a safety issue to avoid out of control prairie and forest fires. Finally, Ms. Downey stated that the optimal conditions for a safe fire (wind, temperatures, humidity and rain) are relatively rare. Due to the rare burn opportunities, by necessity area ranchers need to burn on the same optimal burn day. Third, due to the large expanses of continuous range, there will be large, individual fires. Lastly, conditions that favor less smoke also make fire very difficult to control and may cause the county safety officials to deny burning permits.

Dr. Doug Goodin, Professor of Geography, Kansas State University (Attachment 4) appeared before the Committee. Dr. Goodin discussed research from his work as the principle investigator for a USDA funded project on rangeland burning and smoke diffusion in the Flint Hills, with the goal of understanding how the location and timing of burning affects the air quality in metropolitan areas. The project goals include: map



## CONTINUATION SHEET

Minutes of the Senate Natural Resources Committee at 8:30 a.m. on January 22, 2010, in Room 144-S of the Capitol.

where, when and how much tall grass prairie is burned, estimate how much biomass has been burned and how much pollution has been released, develop a climatology of extreme air events, model downwind transport of pollution, develop an automated method of forecasting pollution due to biomass burning, and transfer the information gained to stakeholders. Although the project is currently research based, it will transition to an operational project in the future. The ultimate goal of the project is to develop tools to use in an advisory capacity to improve burn management strategies and to minimize the risk of air quality problems, while preserving the prairie and maintaining economically viable livestock production.

Dr. J. Pat Murphy, Kansas State Research and Extension (Attachment 5) reviewed Prescribed Burning Workshops to be held in Central and Eastern Kansas, specifically on safe burning and addressing specific objectives for each burn.

Barb Downey, Dr. Goodwin, and Tom Gross took questions from the Committee.

The following provided written testimony:

Dale Goter, Government Relations Manager, City of Wichita (Attachment 6)

Ron Klataske, Executive Director, Audubon of Kansas (Attachment 7)

Senator McGinn stated that the topic would be revisited February 4, 2010, specifically allowing urban areas to have more time to share on the topic.

Senator Carolyn McGinn made a motion to introduce a Concurrent Senate Resolution- urging the Congress to exempt the Flint Hills tallgrass prairie from any United States EPA a smoke management plan. Senator Abrams seconded the motion. The motion carried.

The next meeting is scheduled for January 28, 2010.

The meeting was adjourned at 9:30 a.m.

# SENATE NATURAL RESOURCES COMMITTEE

## Guest Roster

Jan 22, 2010

(Date)

Steven Cochran	K-State Research & Extension
Steve Swatlar	KFB
PAT MURPHY	K-State Research & Ext.
Doug Goodwin	K-State Geography
John Donley	KS Cusk. Ass'n
Jason Hartman	KS Prescribed Fire Council
Kelli Kirkwood	KLA
Allie Devine	KLA
Zesler Kaufman	Ks Coop Council
Ron Klatschke	Audubon of Kansas
Shari Albrecht	KONE
Travis Lane	Little Salt Relations
Carol Duffy McDowell	Tallgrass Ranchers
Jon Hummel	San Geronimo Office
Erik Wisner	KDA
Kendra Hanson	Hein Law Firm
Mark Schweber	Westar
Wanda Kenney	KCA
Kimberly Saly	G&PA
Jim Moxley	Kansas House
BEAR HARRELSON	KFB
John Moxley	Boothby Assoc
Credley Kemp	Johnson County, KS

**Please use black ink only!!**



## TESTIMONY

To: Senate Committee on Natural Resources  
Senator Carolyn McGinn, Chair

From: Representative Tom Moxley

Date: January 22, 2010

Subj: **Prescribed Burning of the Flint Hills**

As a 3 year member of the House and a lifetime Flint Hills rancher, I think that I bring a unique perspective to the issue of prescribed burning in the Flint Hills. We operate about 10,000 acres of Flint Hills pasture land by stocking this grass land with about 4 to 5000 steers from all over the United States. These are shipped into our area in late April or early May to graze for a period of from 3 month to 6 months depending on the program.

One of the keys to good grass and cattle management is a late spring burn, usually in early April. This timing has been studied and recommended to us by about 80 years of KSU research. Management of the grass and cattle have been thoroughly researched and passed on to us by the KSU extension service. As a practical matter, we have enough rain in our area to have a forest and not grassland and the only thing standing in the way is regular burns.

We know what the needs for cattle production and long-term grass management are. Now, we have a new element that has entered the picture. How do we avoid incidents of ozone exceedance? I am convinced that a workable solution can be developed by the ranchers, researchers and other stakeholders. It will not be easy but the consequences of inaction will not be inconsequential. Traditions die hard so some degree of patience will be required of all parties.

My guess is that a combination of spreading the burning season out, partial burns of pastures and/or weather sensitive decisions on burning days will serve us well. Smarter folks than I can come to those conclusions and our KSU Research and Extension Service are well suited to prove them out. Groups like the Tallgrass Legacy Alliance are also well positioned to bring most of the stakeholders into one room.

Thank you for your interest and I would be more than happy to answer any questions you may have at the appropriate time.

Senate Natural Resources Committee  
 Flint Hills Burning  
 January 22, 2010



Tom Gross, Bureau of Air  
 Kansas Department of Health and Environment  
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### Ozone Standard History

- 1971 - EPA set 1-hour standard at 0.120 ppm
- 1997 - EPA set 8-hour standard at 0.085 ppm
- 2008 - EPA lowered 8-hour standard to 0.075 ppm
- 2009 - 0.075 ppm standard withdrawn
- 2009 - New standard proposed
  - Range of 0.060ppm to 0.070 ppm
  - Cumulative secondary standard

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### Overview

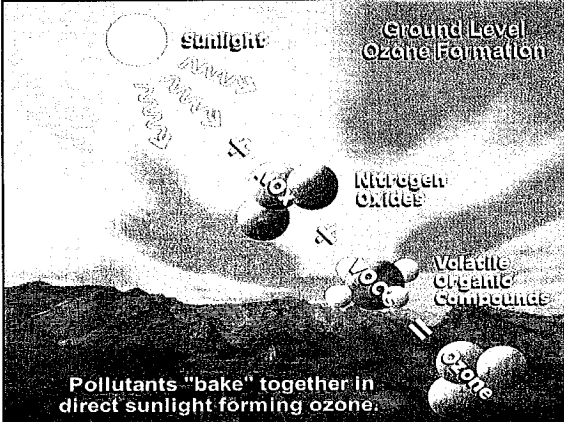
- Ozone
- History of Flint Hills air quality issues
- Emissions data
- Air quality impacts
- Applicable laws and regulations
- What must a Smoke Management Plan include?
- Concept for Kansas Plan
- Next steps

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### History of the Flint Hills Issue

- 2003 burning caused ozone exceedances in KC and elsewhere
- EPA and KDHE have met with ag officials from late 2003 through present
  - KLA, Farm Bureau, KSU researchers, KSU extension, NRCS, DoA, Prescribed Fire Council and more
- Research, education and field training have been primary outcomes to date
- EPA required smoke management plan in current KDHE grant work plan

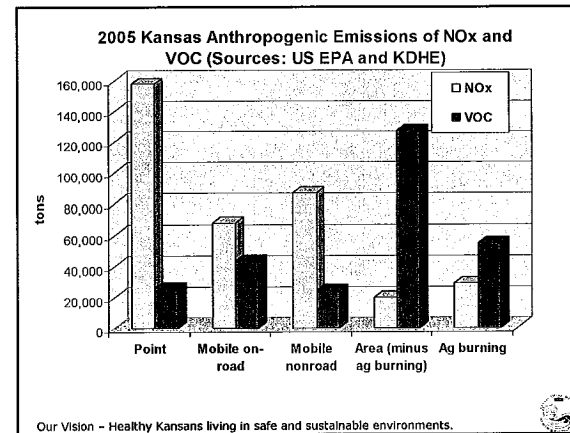
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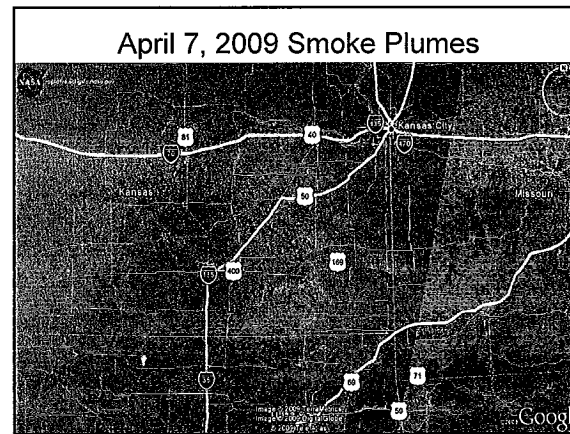
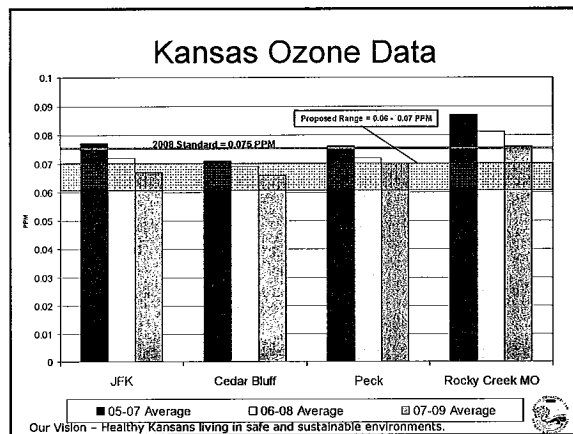


**Ground Level Ozone Formation**

Sunlight + Nitrogen Oxide + Volatile Organic Compounds = Ozone

Pollutants "bake" together in direct sunlight forming ozone.

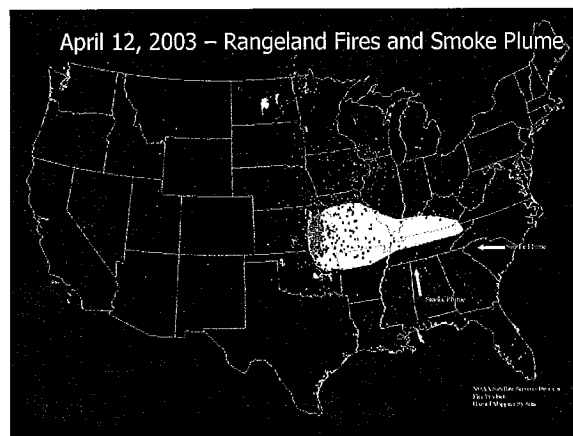
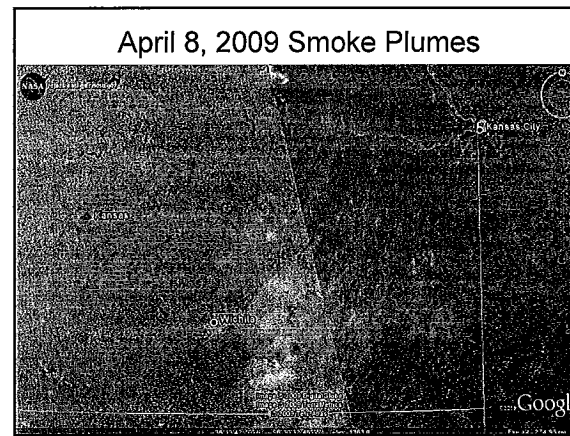




### Kansas Ozone Status

- KC violated 0.075 ppm standard recently withdrawn by EPA
- KDHE in final stages of adopting new rules for industry and trucks in KC
- Wichita met 0.075 standard
- 2008 and 2009 were relatively good years for ozone due to cool summers
- Highest readings during entire 2009 ozone season for KC and Wichita were due to burning
- Under new EPA standard, Kansas will have to designate counties included in ozone planning area

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### April 7, 2009 - Ozone (ppm)

KC Area Sites		Wichita Sites	
JFK:	0.061	Health Dept.:	0.048
<i>Heritage Park:</i>	<i>0.079</i>	Park City:	0.044
Leavenworth	0.064	Sedgwick:	0.050
Mine Creek	0.071	Peck:	0.051

**8 Hour Standard: 0.075 PPM**

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## April 8, 2009 – Ozone (ppm)

KC Area Sites		Wichita Sites	
JFK:	0.051	Health Dept.:	0.095
Heritage Park:	0.054	Park City:	0.080
Leavenworth	0.054	Sedgwick:	0.081
Mine Creek	0.061	Peck:	0.081

8 Hour Standard: 0.075 PPM

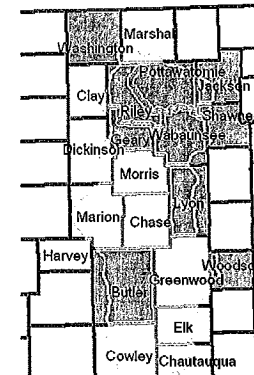
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There are 21 counties that comprise the Flint Hills Ecoregion...

Counties that require notification: 21

Counties that require a permit: 10



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## Relevant Kansas Law

**65-3005. Powers of the Secretary.** The secretary shall have the power to... adopt regulations... control air pollution... encourage local units of government to handle air pollution problems

**65-3010. Emission control requirements.** The secretary shall establish emission control requirements, and requirements for open burning...

**HB 2369** ...the standards so established shall not be any more stringent, restrictive or expansive than those required under the federal clean air act,

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## Why do a smoke management plan?

- To reduce the impact of emissions from range fires on the public health
- To ensure that the national air quality standards are met
- To ensure that the Flint Hills counties are not designated as part of a Wichita or KC non-attainment area
- To get an exceptional event flag in the event of an exceedance

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## Relevant Kansas Regulations

- **28-19-645. Open burning prohibited**
- **28-19-647. Exceptions to prohibition on open burning.** ...open burning for the purpose of crop, range, pasture, wildlife or watershed management in accordance with K.A.R. 28-19-648
- **28-19-648. Agricultural open burning.** (a) Open burning of vegetation... shall be exempt... provided that the following conditions are met:  
...notify the local fire control authority... unless the appropriate local governing body has established a policy that notification is not required; .....

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## Smoke Management Plans - EPA

- Include an approval process to burn
- Include methods for reducing emissions
- Provisions for best management practices
- Plans to notify the public and reduce exposure when problems occur
- Public education and awareness
- Procedures for ensuring that smoke management programs are effective
- Periodic evaluation of smoke management plan

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## Smoke Management Plan Concept

- Gather data to characterize Flint Hills burn
- Develop a formal outreach plan
- Provide a health notice prior to burn season
- Develop a web tool for local officials
- Modify K.A.R. 28-19-648
- Provide an exclusion below a certain threshold
- Develop best management practices that address air quality
- Daily and seasonal review of ozone and PM data

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## Web Tool - Concept

- Provide forecast information on potential air quality impacts of burning
- Provide spatial maps of potential areas impacted
- Available by 4:00 pm each day
- Show peak hourly impact as low, moderate, or high
- Provide for on line data collection
  - Burn location
  - Size of area burned
  - Timing - Start time and burn duration
  - Biomass Information

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## Contact Information

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[Tgross@kdheks.gov](mailto:Tgross@kdheks.gov)

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Good morning. My name is Barb Downey and I'm a Flinthills beef producer. I run a family-owned ranch along with my husband & together we make all of the day to day operational decisions. Our ranch consists of about 6,500 acres, most of which is virgin tallgrass prairie, ½ of which lies in Wabaunsee County and ½ in Riley County. As you drive I-70, you can see a lot of our Riley County ranch on the north side, just east of K-177 and the Konza Prairie.

This tallgrass ecosystem used to spread from Illinois to Kansas, and from the Dakotas down to Texas. Nowadays, large, unbroken tracts of virgin tallgrass prairie are found almost exclusively in the Flinthills. As the range scientists have told you/will tell you, burning is absolutely integral to the tall grass prairie ecosystem. As cattlemen, we know that and take great pride in our responsibility to maintain this ecosystem. To do that, we count on the use of controlled burns to accomplish what nature used to do with catastrophic prairie fires.

Besides the long term preservation of the prairie, burning accomplishes several other things. First of all, the native wildlife is adapted to periodic fires and in fact requires the open habitat it provides. Without fire, the prairie would convert to woodland, which it does easily as you can see around any developed areas or poorly maintained areas. Prairie wildlife won't survive in the brush and woods. Besides controlling woody species, fire removes thatch and that allows the young of many species to escape predators.

In addition, burning releases nutrients from the previous years' growth that strengthen and improves future years' growth. That in turn makes for better conversions of grass, something we humans can't use, into nutrient dense, healthful & tasty beef we can use. Burning can also be a tool to control grazing distribution as grazing species are drawn to the lush post-burn growth leaving the unburned areas largely ungrazed.

Finally, proper burning is also a public safety issue. As the country has seen in our national forests and in the CA hills the last few years, continued fire suppression means a fuel load that becomes dangerous. I've seen cedar trees practically explode in the face of a hot fire. A couple of years of accumulated dead grass + one careless smoker or a lightning strike = a prairie fire that is very dangerous and may be impossible to stop. If that fire carries into the cedar woods that surround many of our communities and developments, the results could be catastrophic.

For the preservation of the tall grass ecosystem, for proper grazing and for safety issues, fire is essential.

For these fires to serve their purpose, they must be conducted at the right time. The native warm-season grasses need to be breaking dormancy before you burn. Burn before your native grasses are ready and you leave the ground bare and subject to the invasion of cool-season species and to erosion caused by spring rains. Burn too late and you have too much green to carry a fire unless it's really dry, hot and windy, not the safest conditions in which to start a fire. When you realize the native grasses grow 1-2" per day when temperature & moisture conditions are right, you can see the optimal burn window can close pretty quickly, literally in a day or two.

On our ranch, we have our pastures on a burn rotation which is very subject to change depending on each year's conditions. Ideally, we'd burn a 'normal' pasture every 3 years. However, our Riley Co. pastures were not well maintained for several years prior to our ownership. This has required us to reduce our grazing/stocking rates to preserve a heavy fuel load that we'd like to burn several years in a row in order to bring woody brush back under control. Of course, a dry year means we may burn almost nothing and a very good grass year may mean burning more. No matter what our plans, a stretch of unfavorable weather, be it wet, dry, hot, cold or windy, may throw our best laid plans into limbo.

In order to conduct burns safely, we spend a great deal of time ahead of the season getting equipment in order. We have a truck that acts as 250 gallon tanker, 2 ATV's with 10 & 25 gallon sprayers and one more that serves as a lighting vehicle. In a few of our flatter locations with good roads, we bring in a tractor mounted sprayer. We use 2-way radios with weather capabilities and cell phones for constant communication.

When we burn in Riley County, we must first coordinate plans with approximately 10 landowners (representing a total crew of about 25 folks). There are no natural or man-made firebreaks between us, so if one burns, we all burn and that means about 13,000 acres in a single fire. Down in the larger pastures in the heart of the Flinthills, the lack of firebreaks may mean contiguous pieces of 50-60,000 acres or more. If you've been out in these hills, you know there are lots of places where an ATV can't be driven, let alone a truck with a water tank. The point is this; ranchers must rely on natural firebreaks (rivers or creeks) or roads to stop a fire. You simply can't break these parcels into smaller fires.

Once all the planning & prep's done & before we actually light a day's fire, we have to call in to the Emergency Management Director for the day's permission, which may be denied if conditions are not deemed safe. Conditions that might cause the director to deny daily permission are low humidity, high temperatures, high winds or any combination thereof. The ironic thing here is that these weather conditions promote a hotter fire that creates less smoke. "Safer" days have clouds, low wind, high humidity and recent rainfall, all of which can cause smoke problems for our urban neighbors.

In addition to this, we have to also take into consideration our immediate neighbors and the conditions that day. We have neighbors to our north with houses built in cedar woods. The conditions that make for favorable brush control also make for a greater risk of lighting their woods and thus their house on fire. As mentioned, we have I-70 to the south of us. A good north wind that protects these north houses can cause smoke to blow across the freeway creating an obvious hazard. In short: when all the conditions line up right, we have to burn then and there or we may not burn at all. And if they're right for us, they're right for a whole bunch of other folks too.

Our Wabaunsee County range can be easier to burn from a fire management standpoint because we have roads on most of the section lines (640 acre chunks). However, it becomes more difficult because of the greater housing density. One day we spent 13 hours backburning & burning one 500 acre piece of ground in order to protect 2 houses. And even with roads acting as natural firebreaks, prudence dictates we light backfires along all of these so that wind gusts don't carry fire or embers right across the road. So while "easier" to burn, taking care of our 3200 acres in Wabaunsee County takes more actual time than our same-acreage, single-piece Riley County land.

When all's said and done, for our 6500 acres, not all of which is burned every year, we will spend, at the least, one week of actual burn time. This NEVER happens one week though. You may get one

ay here, one day there and so on. If we've got a 'good day' we have to burn as much as possible. All in all, our burn season lasts about 2 weeks if we aren't cut off by too much green up. While we are full time ranchers, we are on the smaller end, meaning there are plenty of range managers with larger acreages to cover in the same narrow window. We are fortunate not to have the constraints of off farm jobs to keep us from burning when the conditions line up right. Which brings up another point. We deliberately try to avoid burning on the weekends, ESPECIALLY if it looks like a good burning day. My husband and our employee are the largest part of our local volunteer fire department. We know lots of folks will be burning on the weekends, and some of those folks may be short on knowledge and experience, thus the risk of a fire going out of control are greater, so my husband & I will often put our plans on hold for public safety reasons.

In summary, the points I want to leave you with are these:

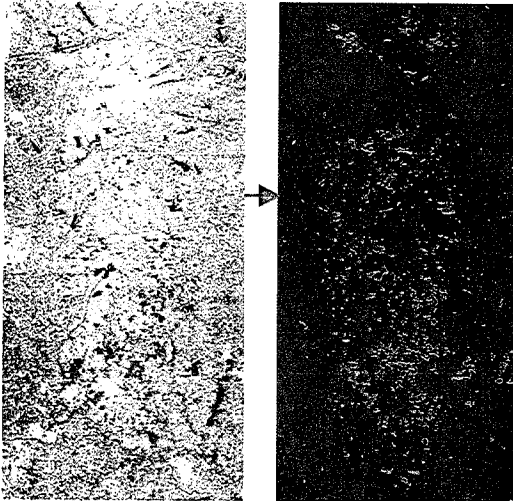
1. The right conditions for a safe fire (wind, temps, humidity, rain) are relatively rare in an average Kansas spring.
2. If they're right for one range manager, they're right for many and may not happen again that season.
3. Large expanses of contiguous range, the very thing that makes the Flinthills so unique and ecologically valuable, mean large individual fires.
4. Weather conditions like last spring bottleneck everybody so that there may be huge acreages burning over 1 or 2 days if they're going to get burned at all that year.
5. Conditions that favor less smoke also make fire very difficult to control and may in fact cause the county safety officials to deny burning permits.

Our ranch is the rule rather than the exception in terms of the care we take in safely and properly managing our native range. We also realize that as Kansans, we all need a flourishing, efficient and vibrant economy, along with a safe place for us all to live. As citizens wanting very much to properly preserve the Flinthills, we look forward to helping develop a workable plan that preserves the ability to maintain the Flinthills while addressing the needs of all.

# Rangeland Burning and Smoke Diffusion in the Flint Hills

## Burned area mapping

- Detect how much tallgrass prairie is being burned
- Discover exactly *where* and *when* this is taking place



April 1, 2003 satellite image

Map of burned areas

- Burned area maps are the first step in estimating pollution

## Biomass Estimation

- Biomass will be estimated from satellite imagery



- Burned area maps will be compared to biomass maps to estimate pollution output

## Research Team

Douglas G. Goodin, Dept. of Geography, Kansas State University (PD)  
 Scott Goodrick, U.S. Forest Service  
 Walter Fick, Dept. of Agronomy, Kansas State University  
 Jay Ham, Dept. of Agronomy, Colorado State University  
 William Hargrove, KCARE, Kansas State University  
 John Harrington, Dept. of Geography, Kansas State University  
 Patrick Murphy, Extension, Kansas State University  
 Rhett Mohler, PhD candidate, Kansas State University  
 Roy Sando, M.A. candidate, Kansas State University

## Project Goals

1. Map where, when, and how much tallgrass prairie is burned
2. Estimate how much biomass has been burned (to tell how much pollution has been released)
3. Develop a climatology of extreme air events
4. Model downwind transport of pollution
5. Develop an automated method of forecasting pollution due to biomass burning
6. Transfer information to stakeholders

## Educational Goals

- Share the results with critical stakeholders
- Train and educate ranchers through extension
- Use the results in academic courses in rangeland management at KSU
- Educate the public about the value of fire as a management tool to accomplish the goals of wildlife conservation, prairie preservation, safety, economic production, and environmental quality
- Use the results to improve burn management strategies to minimize the risk of air quality problems, while preserving the prairie and maintaining economically viable livestock production

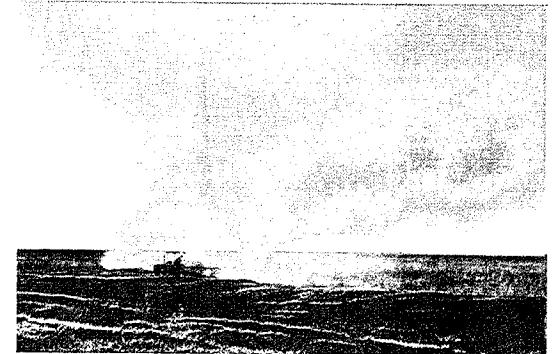
## Acknowledgements

This project was supported by National Research Initiative Competitive Grant no. 2008-55112-18801 from the USDA Cooperative State Research Education, and Extension Service Air Quality Program, awarded 01 February, 2008.



## Air Pollution Analysis

- Develop an understanding of seasonal weather patterns in the KC Metro area

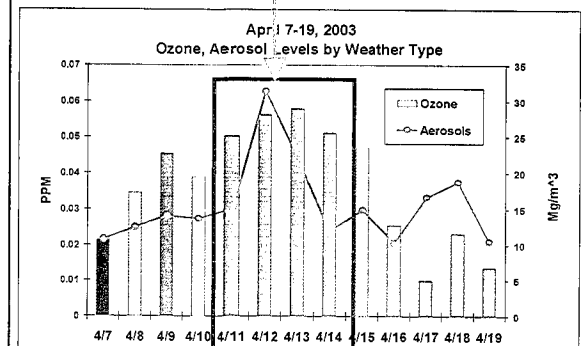


- Determine how weather affects pollutants emitted from the burning
- Compare results to actual burn events

April 13, 2003



Map showing burn emissions linked to graphic of pollution levels and weather type



**October 29, 2009**

**Prescribed Burning Workshops to be Held in Central and Eastern Kansas**

Fire safety is a priority topic of the upcoming Prescribed Burning Workshops scheduled to be held in central and eastern Kansas this fall.

Carol Blocksome, Grassland Water Quality Extension Staff at Kansas State University (KSU), Manhattan, said that these workshops are a continuation of workshops conducted in western Kansas last fall. It was evident from these workshops that producers needed and wanted more information and education on how to conduct a safe and successful prescribed burn.

"Safe burning requires proper planning, education, and training," she said.

"Producers may want to burn native and Conservation Reserve Program (CRP) grassland to improve vegetative quality, control weeds, manage for wildlife, or fulfill CRP contractual obligations," said Blocksome.

For more information, please contact your local conservation district or KSU Extension office.

**Agenda topics are:**

- \* CRP Maintenance and Management Practices
- \* Burn Considerations: Why and When to Burn
- \* Burn Notification and Local Regulations
- \* Producer Panel
- \* Using a Burn Contractor
- \* Burn Terminology and Fire Behavior: Smoke Management, Eddy Currents, Fire Guards, Burning Techniques
- \* Planning and Conducting a Burn
- \* Burn Equipment

**Presenters** include representatives from the Natural Resources Conservation Service (NRCS), Farm Service Agency (FSA), Kansas Department of Wildlife and Parks (KDWP), Kansas Forest Service (KFS), U.S. Fish and Wildlife Service, KSU, as well as local fire and emergency management staff and local producers with burn experience. Presenters vary by workshop, but all will be presenting essentially the same information.

**Workshops are sponsored** by local conservation districts, Watershed Restoration and Protection Strategy (WRAPS), Kansas Department of Health and Environment, Environmental Protection Agency, Kansas Water Plan funds, Kansas Grazing Lands Coalition, Kansas Fire Council, local fire departments and emergency management personnel, KFS, KDWP National Weather Service, KSU Extension, and U.S. Department of Agriculture (USDA) agencies in Kansas--FSA and NRCS.

**Workshop dates, locations, and phone numbers are as follows:**

Nov. 3, Howard  
620-374-2174---Elk County Extension Service  
Nov. 9, Ellsworth  
785-472-4442---Ellsworth County Extension Service  
Nov. 10, Lincoln  
785-524-4855---USDA Service Center, Lincoln  
Nov. 12, Clay Center  
785-632 3550---USDA Service Center, Clay Center  
Nov. 16, Greensburg  
620-723-2311---Kiowa County Conservation District  
Nov. 17, McPherson  
620-241-1523---McPherson County Extension Service  
Nov. 18, Kingman  
620-532-3116---Kingman County Conservation District  
Nov. 19, Parsons  
620-784-5431---USDA Service Center, Altamont, Labette County  
620-244-3491---USDA Service Center, Erie, Neosho County  
Nov. 24, Abilene  
785-263-4780---Dickinson County Environmental Services  
Nov. 30, Hiawatha  
785-742-3161---Brown County Conservation District  
with Doniphan and Nemaha counties  
Dec. 1, Lyons  
620-257-5184---Rice County Conservation District  
Dec. 3, Smith Center  
785-282-3832---Smith County Conservation District or  
785-282-6823---Smith County Extension Service  
Dec. 7, Iola  
620-365-2901---Allen County Conservation District

**For more information** about developing a prescribed burn plan for native grass or acres enrolled in the CRP, contact your local USDA Service Center or your Extension office.

Mary D. Shaffer, Public Affairs Specialist  
USDA Natural Resources Conservation Service  
760 South Broadway  
Salina, Kansas 67401-4604  
785-823-4571; FAX 785-823-4540  
mary.shaffer@ks.usda.gov

Helping People Help the Land  
NRCS is an equal opportunity provider and employer.

### Wichita's Ambient Air Quality Attainment Status for Ozone:

In November of 2008, the Wichita MSA was deemed in attainment per KDHE as the three year (2006 – 2008) averages of the fourth highest 8-hour ozone level at each Wichita monitoring site was within acceptable EPA ozone levels; all levels were below .075 ppm.

#### *How do we measure ozone levels in the Wichita Metropolitan Statistical Area (MSA)?*

In March, 2008, EPA revised the National Ambient Air Quality Standards (NAAQS) for ground-level ozone to 0.075 parts per million (ppm). This revision reflects new evidence about ozone and its adverse effects on public health and the environment. Ozone is the only one of EPA's six criteria air pollutants that Wichita is close to violating.

The State of Kansas operates a series of ozone monitors throughout the metropolitan area to measure concentrations of ozone in our air (Figure 1).

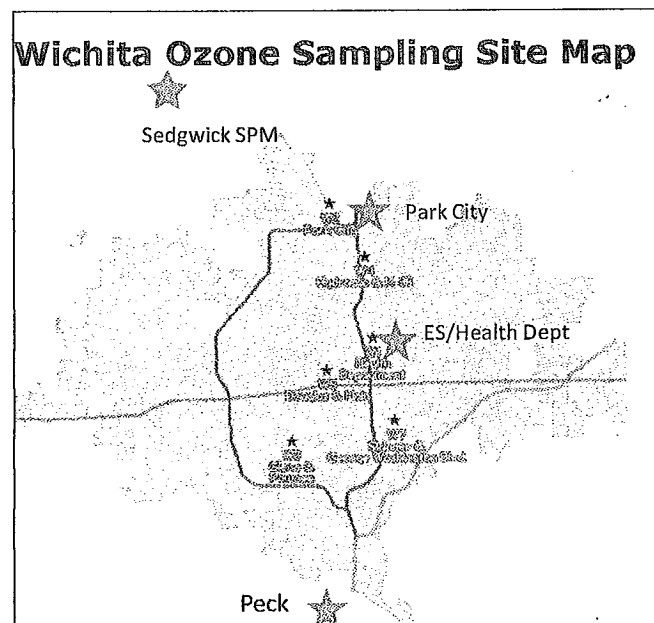


Figure 1

#### Wichita Ozone Monitoring Results:

Historically, three monitors have measured ozone levels in Sedgwick County. One is near the Sedgwick-Sumner County line at Peck to measure air moving in from the south. Another is at Park City to measure the air as it moves past Wichita. The third monitor is located at the City's Environmental Services Building (Health Dept.) at 1900 E. Ninth Street to measure the



air near the central downtown corridor. A fourth monitor was installed by KDHE in 2008 as a special monitor. The fourth highest 8-hour measurements for these four monitors are:

Site	2006 (4 <sup>th</sup> Highest Value)	2007 (4 <sup>th</sup> Highest Value)	2008(4 <sup>th</sup> Highest Value)
➤ Peck	➤ 0.080 ppm	➤ 0.078 ppm	➤ 0.068 ppm
➤ Park City	➤ 0.065 ppm	➤ 0.062 ppm	➤ 0.060 ppm
➤ Env. Services Bldg.	➤ 0.073 ppm	➤ 0.074 ppm	➤ 0.067 ppm
➤ Sedgwick (Special)	➤ N/A	➤ N/A	➤ 0.058 ppm

The EPA looks at the annual fourth-highest day, which is averaged over a three-year period to determine whether an area exceeds the ozone standard. Each year, the oldest year's value is dropped from the average and the most recent year is added. Monitors with the highest readings are used to determine whether the standard is exceeded.

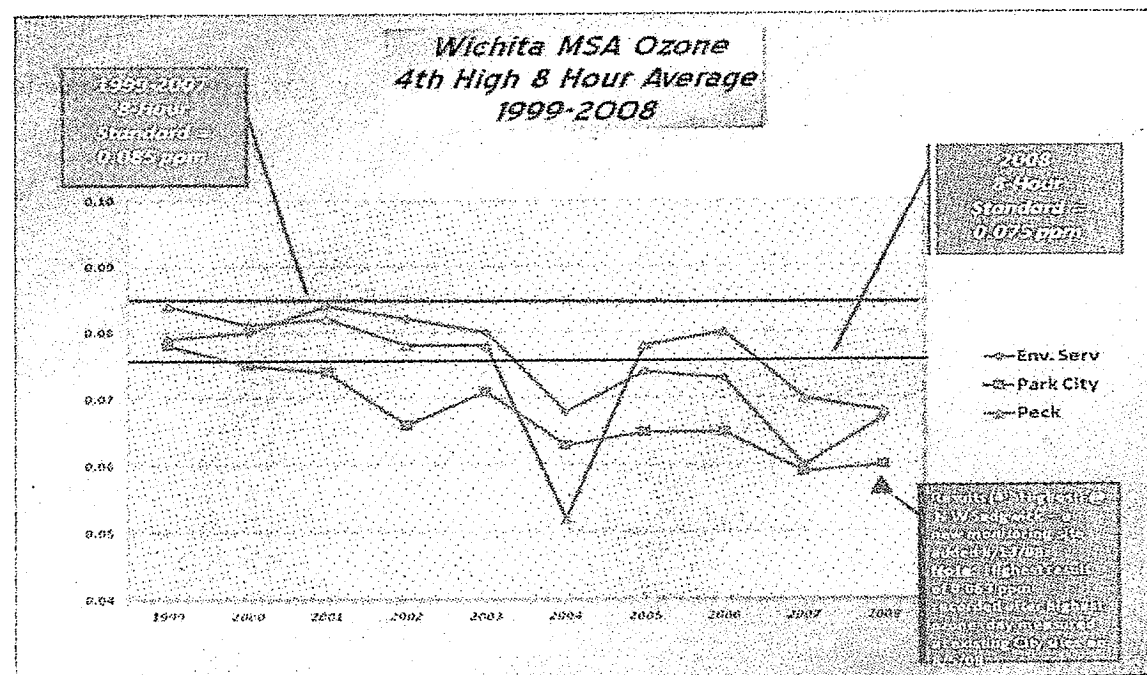


Figure 2

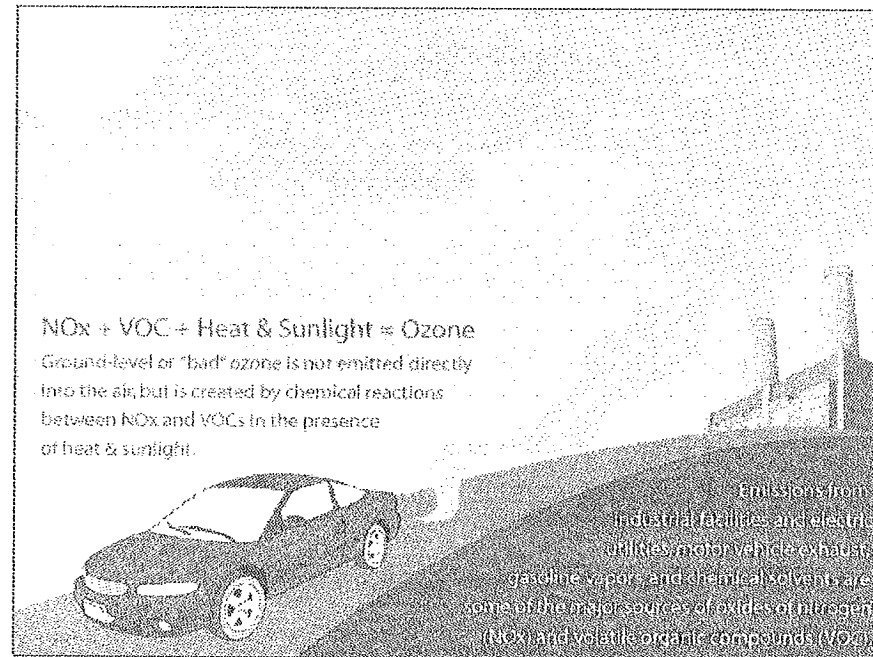
In November of 2008, the Wichita MSA was deemed in attainment per KDHE as the three year (2006 – 2008) averages of the fourth highest 8-hour ozone level at each monitor were within acceptable EPA ozone levels – all levels were below .075 ppm. The cool damp weather conditions this summer was a key factor in reaching 2008 attainment, maintaining ozone compliance levels for the second summer in a row. However, the weather conditions cannot be depended on as a mechanism for compliance.

#### *What is ozone and how is it formed?*

Ozone (O<sub>3</sub>) is a gas that occurs in the Earth's upper atmosphere and at ground-level. In the upper atmosphere ozone acts as a protective layer against ultra-violet (UV) radiation. Ground-level ozone, or "bad" ozone, is created by a chemical reaction between nitrogen oxides and volatile organic compounds (VOCs) in the presence of heat and sunlight. Ground-level ozone

is the primary component of smog. Ground-level ozone levels are typically the highest on hot summer days, with little or no cloud cover and very little wind.

Motor vehicle exhaust, industrial emissions, gasoline vapors, and chemical solvents are some of the major sources of  $\text{NO}_x$  and VOC emissions that contribute to ground-level ozone formation. Grass burning activities and fires can also contribute to ozone formation. Large urban areas tend to have the highest ozone levels, but even rural areas can experience increased ozone levels when wind carries ozone hundreds of miles from their original sources.

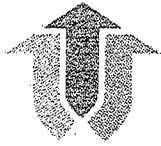


### ***What are the health effects of ground-level ozone?***

Even at low levels, ground-level ozone triggers a variety of health problems including asthma attacks, reduced lung capacity, and increased susceptibility to respiratory illnesses like pneumonia and bronchitis. Ozone can cause permanent lung damage after long-term exposure. Ozone can irritate lung airways and cause inflammation. Other symptoms include wheezing, coughing, pain when taking a deep breath and breathing difficulties during exercise or outdoor activities. People with existing respiratory problems are most vulnerable to elevated ozone levels. Ground-level ozone also damages the leaves of trees and other plants, ruining the appearance of cities, national parks, and recreation areas. Ozone reduces crop and forest yields, and increases plant vulnerability to disease, pests, and harsh weather.

### **Communities and Cities Potentially Impacted:**

If even one ozone monitor in the Wichita area violates the new ozone standard, the entire Wichita Metropolitan Statistical Area (Sedgwick, Butler, Harvey, and Sumner counties) would be designated by EPA as an ozone nonattainment area. Areas designated as nonattainment, even after reducing their ozone levels to comply, remain a maintenance area for an additional 10 years.



WICHITA METRO  
CHAMBER OF COMMERCE

# Ambient Air Quality Update for Ozone

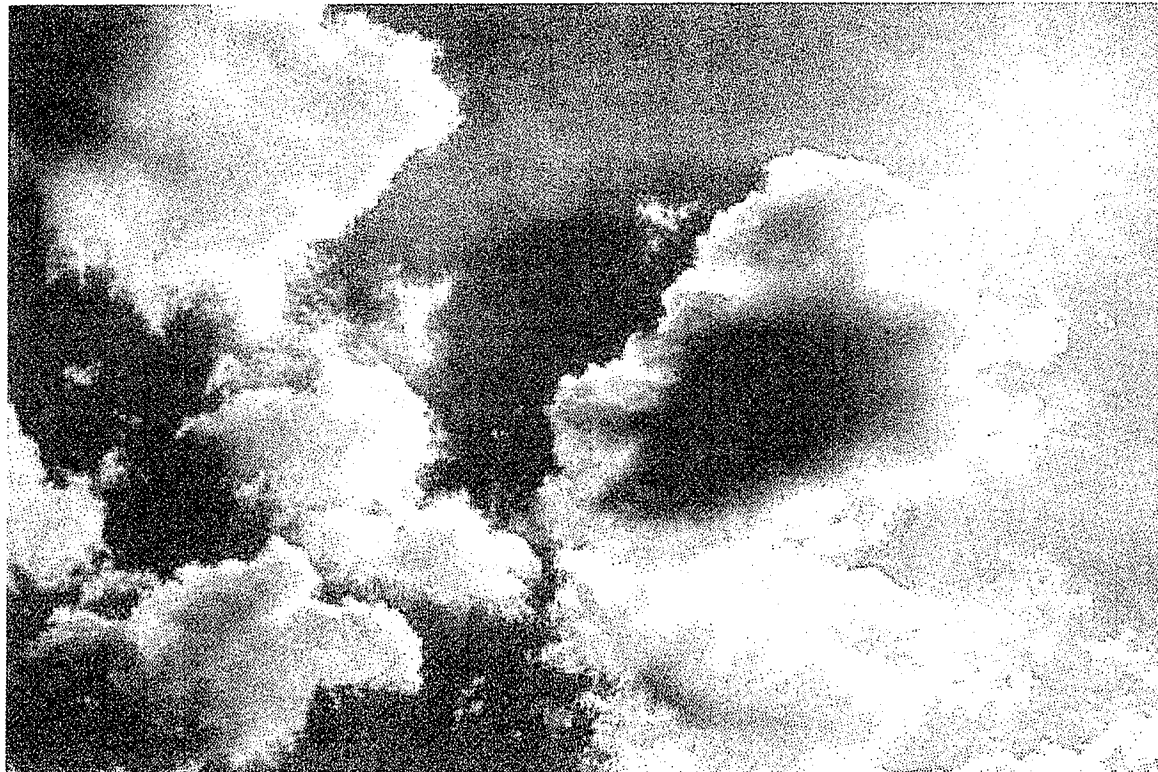
**D. Kay Johnson, Director**  
**Environmental Services Dept**  
**City of Wichita**  
**April 26, 2009**



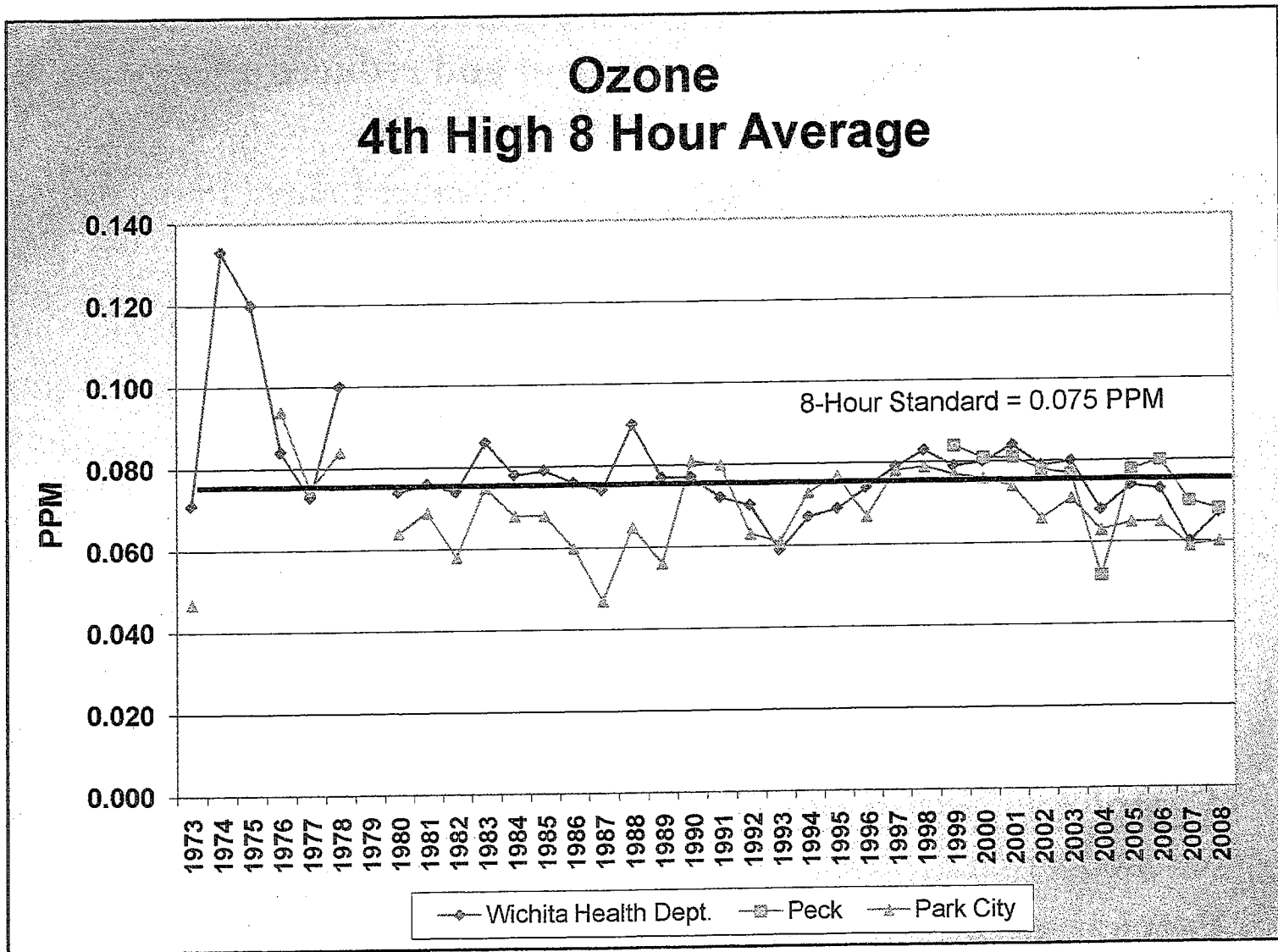
CITY OF  
WICHITA

# OZONE

**WICHITA'S - No. 1 AIR QUALITY ISSUE**



# Historic Wichita Ozone Trends



## Historical Perspective – Wichita Actions

**City of Wichita has a long-standing commitment to environmental quality including ambient air quality improvement and reduced energy usage (that also reduces greenhouse gas emissions)...**

- **Energy practices in City buildings** continues today (1977)
- **Street light change out** – ongoing (1980s)
- **Rail Corridor Overhead Trains** continues today (1990s)
- **Air Quality 33-50 Program** - Sedgwick Co was one of top 10 counties having highest chemical air emissions in the US, Emissions Reduction Program (1988-1997) – EPA recognized community for achieving goal!
- **Wichita Air Quality Improvement Task Force** continues today (1998)
- **Landfill methane recovery** continues today (1998)
- **Intelligent Transportation Systems/Traffic lights change out** – ongoing, more efficient bulbs (2002)
- **Completed Transit Bus Change Out** – more efficient buses with reduced air emissions – no black smoke! (2004-2006)
- **Purchased 12 Hybrid cars** (2008)

# WICHITA MEASURES OZONE

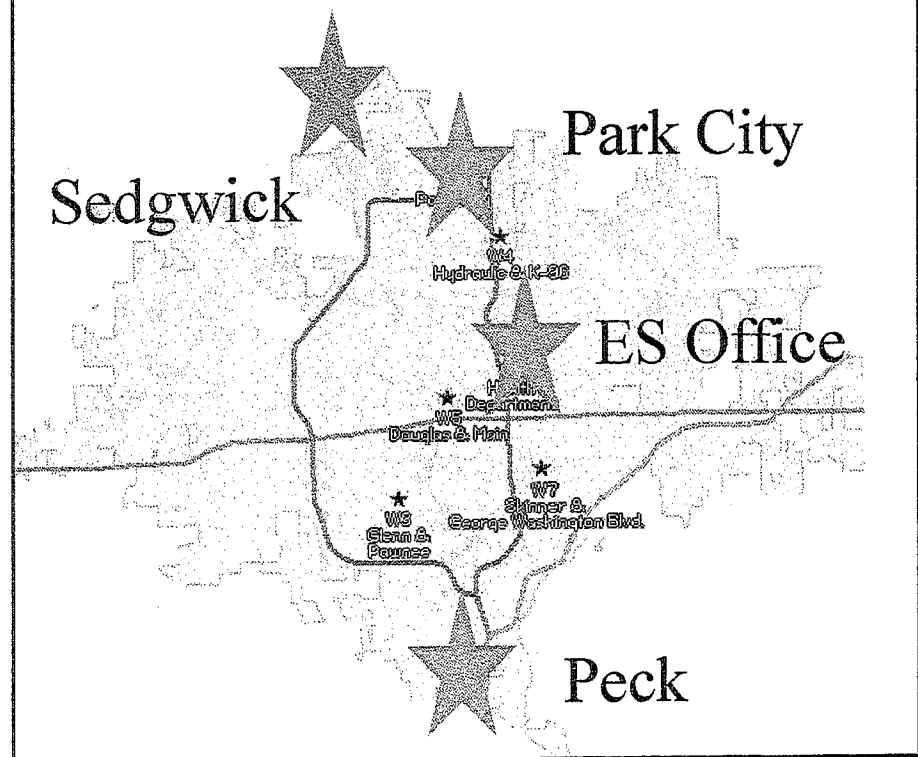
Through a KDHE contract, the City of Wichita measures the local ambient air quality at seven locations for five of six criteria pollutants.

CO, Particulates, SO<sub>x</sub>, NO<sub>x</sub>, Ozone, (no longer monitor Lead)

Ozone is measured routinely at three locations: Peck, Environmental Services Office (Health Dept.), and Park City

New monitor is at Sedgwick.

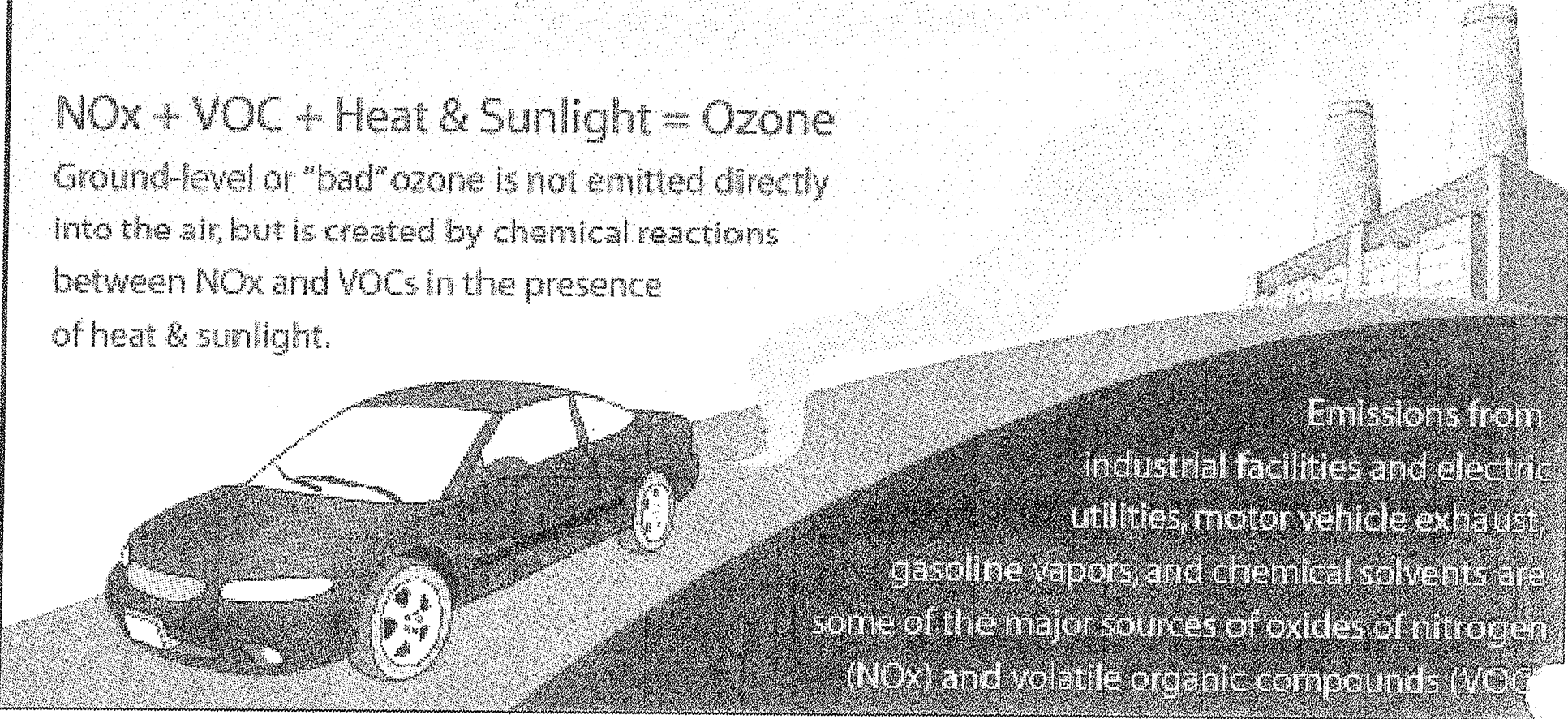
Wichita Ozone Sampling Site Map



# WHERE DOES OZONE COME FROM?

$\text{NO}_x + \text{VOC} + \text{Heat \& Sunlight} = \text{Ozone}$

Ground-level or "bad" ozone is not emitted directly into the air, but is created by chemical reactions between  $\text{NO}_x$  and VOCs in the presence of heat & sunlight.



Emissions from industrial facilities and electric utilities, motor vehicle exhaust, gasoline vapors, and chemical solvents are some of the major sources of oxides of nitrogen ( $\text{NO}_x$ ) and volatile organic compounds (VOC).



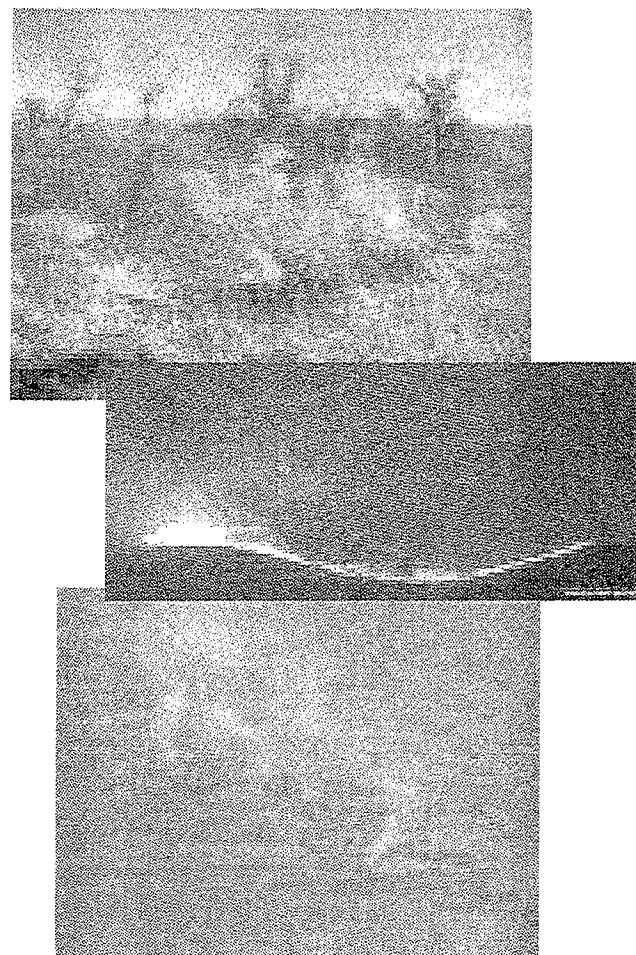
# WHERE DOES OZONE COME FROM?

In addition to the typical sources of ozone producing compounds are grass fires.

Grass fires are common in agricultural setting for maintenance of grass land pastures and other agriculture practices.

The grass fire produces oxides of nitrogen (NO<sub>x</sub>) and VOCs as components of the smoke.

These are the two compounds that when mixed in the air and exposed to heat/sunlight produce ozone.



# Wichita - Ozone

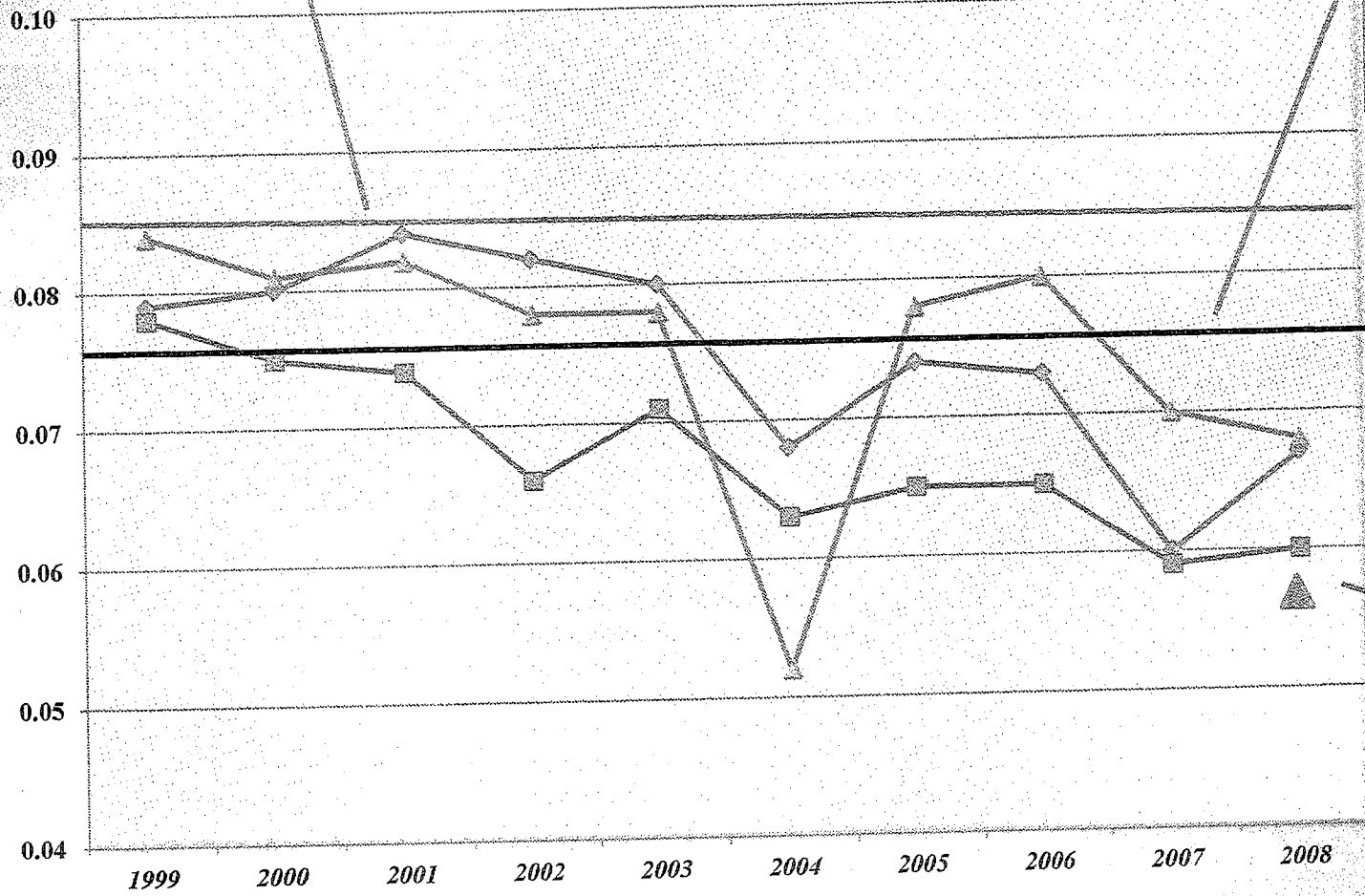
## Attainment vs. Nonattainment?

- If the level of a pollutant is below the NAAQS, the area will be designated attainment for that pollutant - Wichita MSA is currently “in compliance” with all criteria.
- If the pollution limits are exceeded for a 3-year rolling average of the 4<sup>th</sup> highest value, EPA will designate an area as nonattainment – Wichita is very close to going “out of compliance”.
- Nonattainment results in more stringent regulatory requirements.
- “Maintenance” areas are regions initially designated as nonattainment but have attained compliance with the NAAQS. Maintenance lasts for 10 years and has regulatory implications as well

# Wichita MSA Ozone 4th High 8 Hour Average 1999-2008

1999-2007  
8-Hour  
Standard =  
0.085 ppm

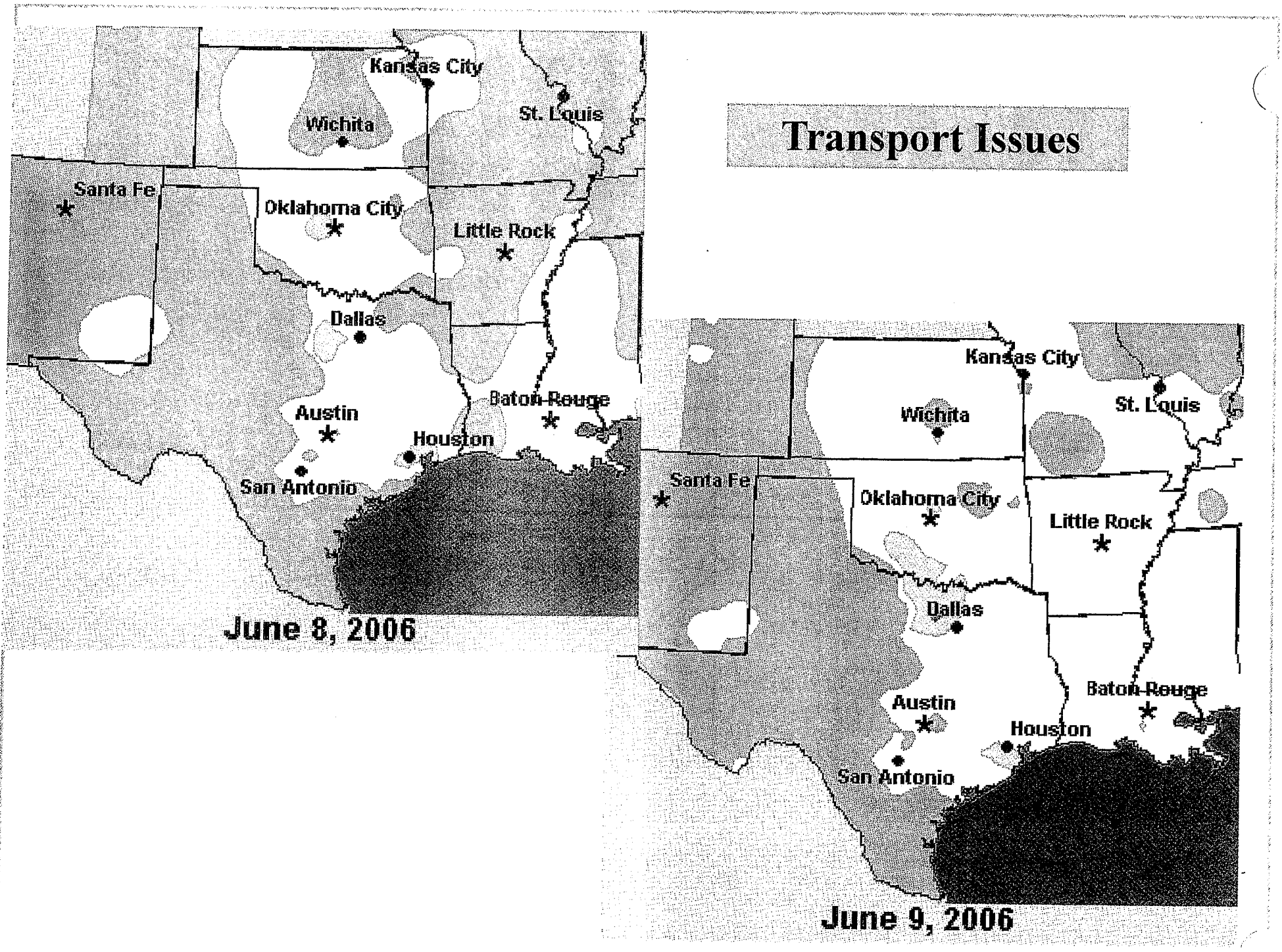
2008  
8-Hour  
Standard =  
0.075 ppm



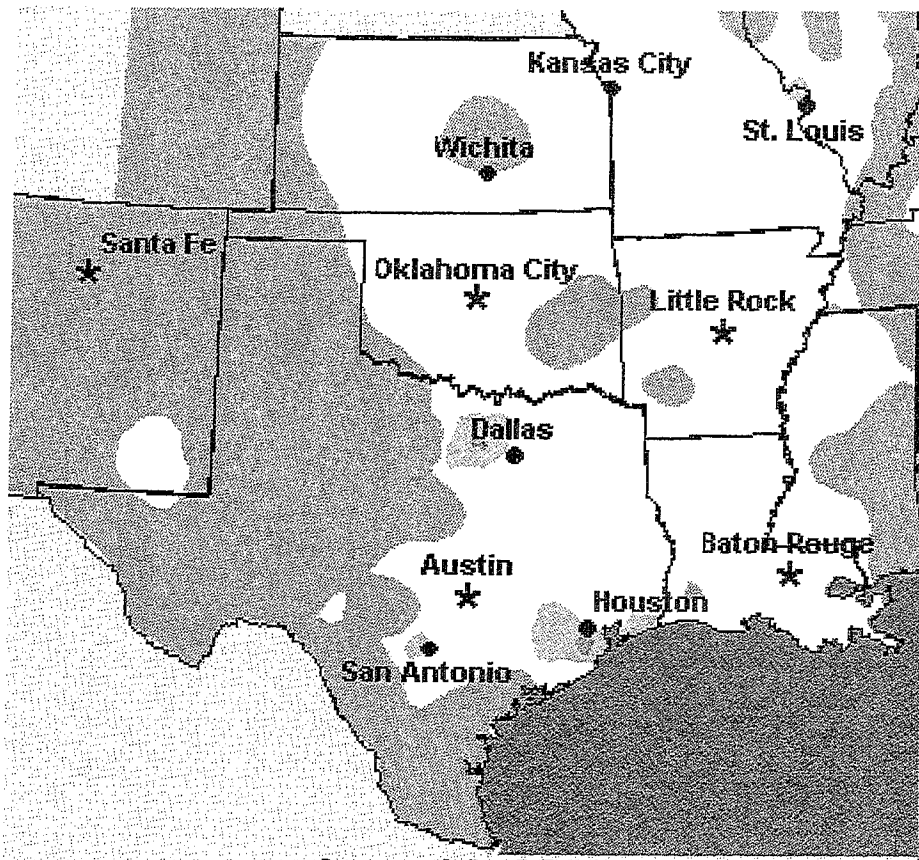
- ◆ Env. Serv
- Park City
- ▲ Peck

Results @  
N W Sedgwick —  
a new monitoring  
site added 8/13/08  
with  
0.063 ppm highest  
recorded after  
highest ozone day  
on 8/5/08

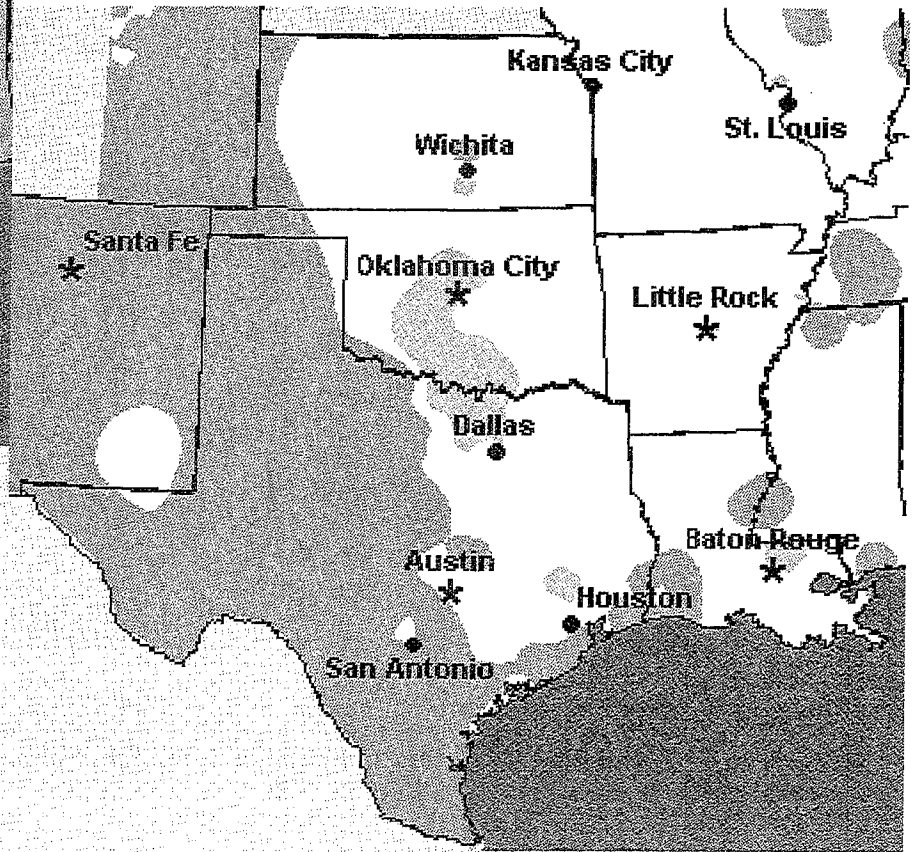
## Transport Issues



# Transport Issues



June 14, 2006



June 15, 2006

# Particle Pollution

## (Fine Particulate Matter)

### Sources:

Motor vehicles

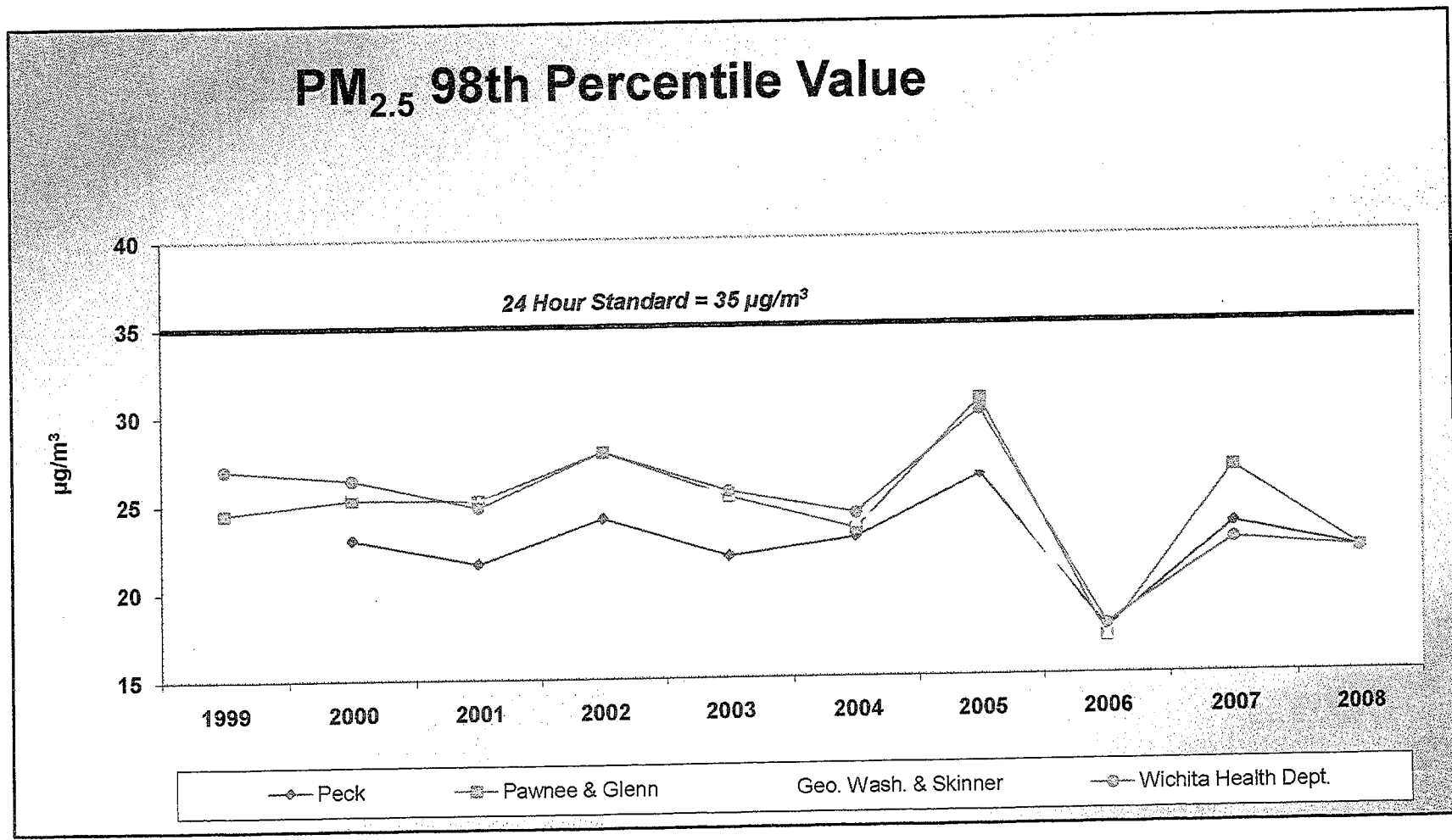
Power plants

Residential wood burning

Agricultural burning

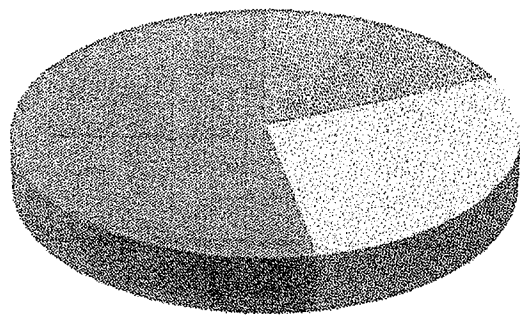
Industrial processes

# 24 Hour PM<sub>2.5</sub> Values



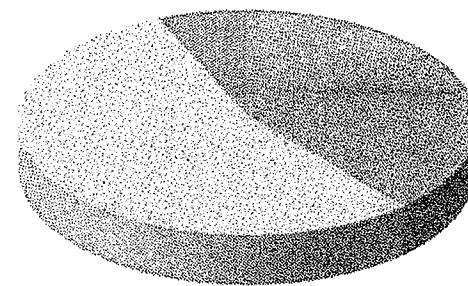
# 2002 Wichita Area Emissions by Source Type

## VOC Emissions



- Point Source - 8%
- Non-road Mobile - 11%
- On-road Mobile - 28%
- Area Source - 53%

## NOx Emissions

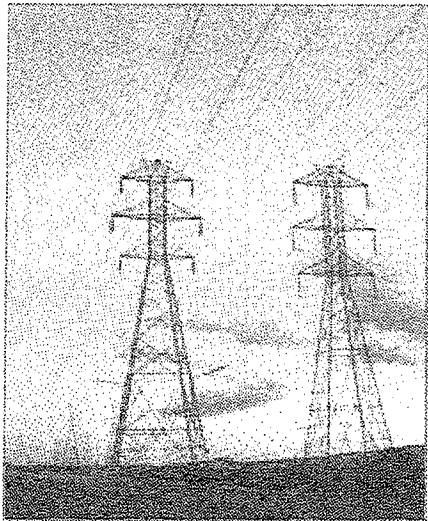


- Point Source - 15%
- Non-road Mobile - 23%
- On-Road Mobile 55%
- area Source 7%

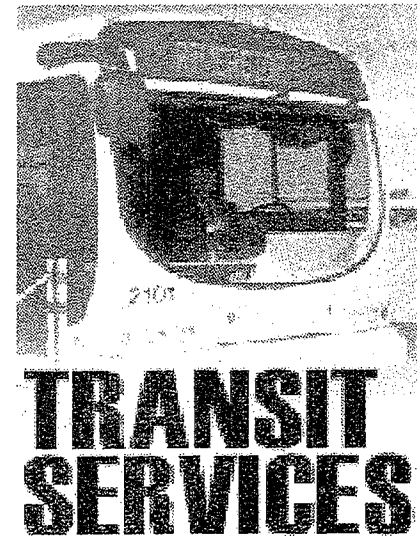
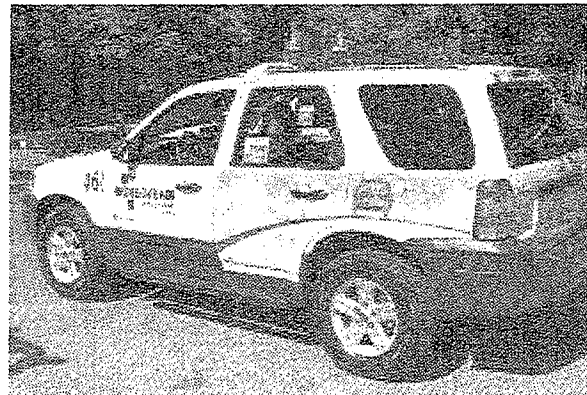
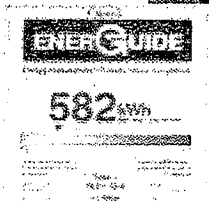
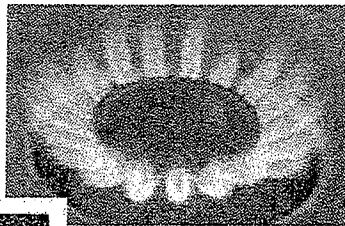


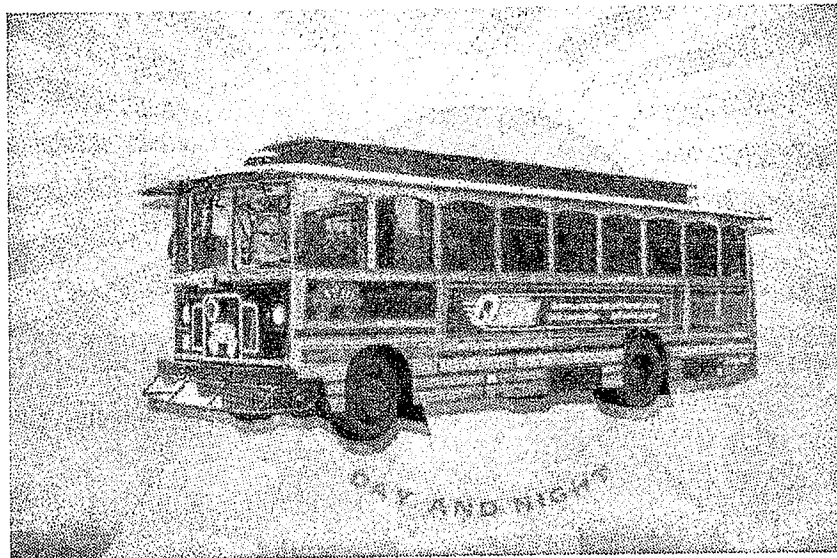
# Potential City-level Actions - Energy

81-07  
6-18

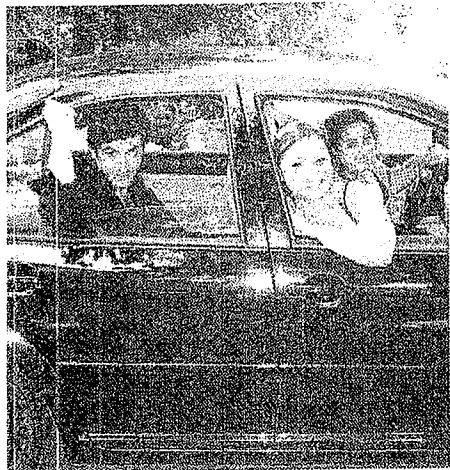


- Reduce energy consumption
- Mitigate traffic congestion
- Improve Mass Transit Availability
- Purchase alternatively fueled and efficient vehicles
- Reduce single occupant vehicles
- Purchase renewable energy
- Consume fuel efficiency in goods and services





*Wichita Q-Line*



**Wichita Rideshare**



# COMMUNITY ACTION

## General Public – Education w/media

- Fuel when it's cool (after 6pm)
- Don't top off gas tanks
- Don't idle vehicles unnecessarily
- Carpool, ride the bus, walk, bicycle
- Conserve electricity
- Put off lawn work until after 6pm
- Purchase *energy star* labeled products

# COMMUNITY ACTION

## Organizations -

Business, Industry, Governments, Schools, Etc.

- Educate employees & members
- Fuel when it's cool (after 6pm)
- Don't idle vehicles unnecessarily
- Carpool, ride the bus, walk, bicycle
- Conserve electricity
- Purchase *energy star* labeled products

# Focus Efforts with Organizations

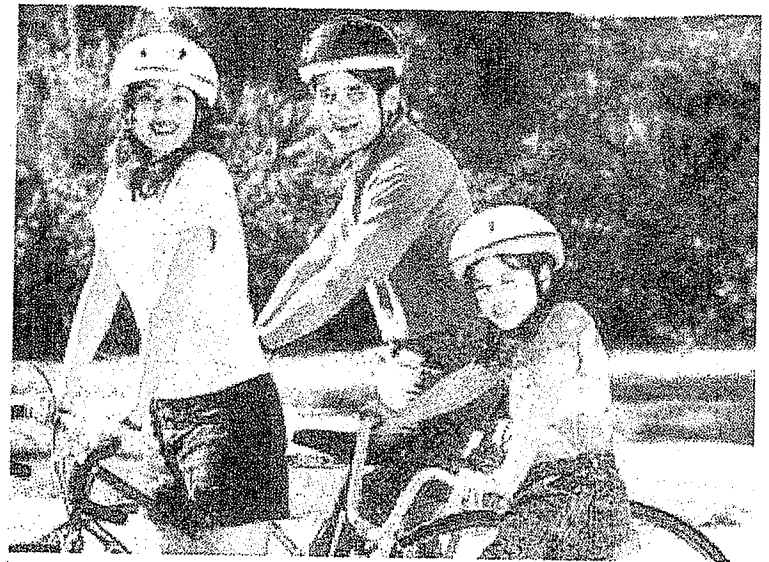
- Large Employers
  - Employee Education
  - Encourage Car pooling, ride and van sharing
  - Offer incentives to work or leave vehicles at home
- Fleet Maintenance
  - Keep vehicle engines tuned-up
  - Keep tires properly inflated
  - Fuel in evening
  - Reduce idling
  - Test tailpipe and gas cap emissions
  - Don't drive unnecessarily – trip chaining



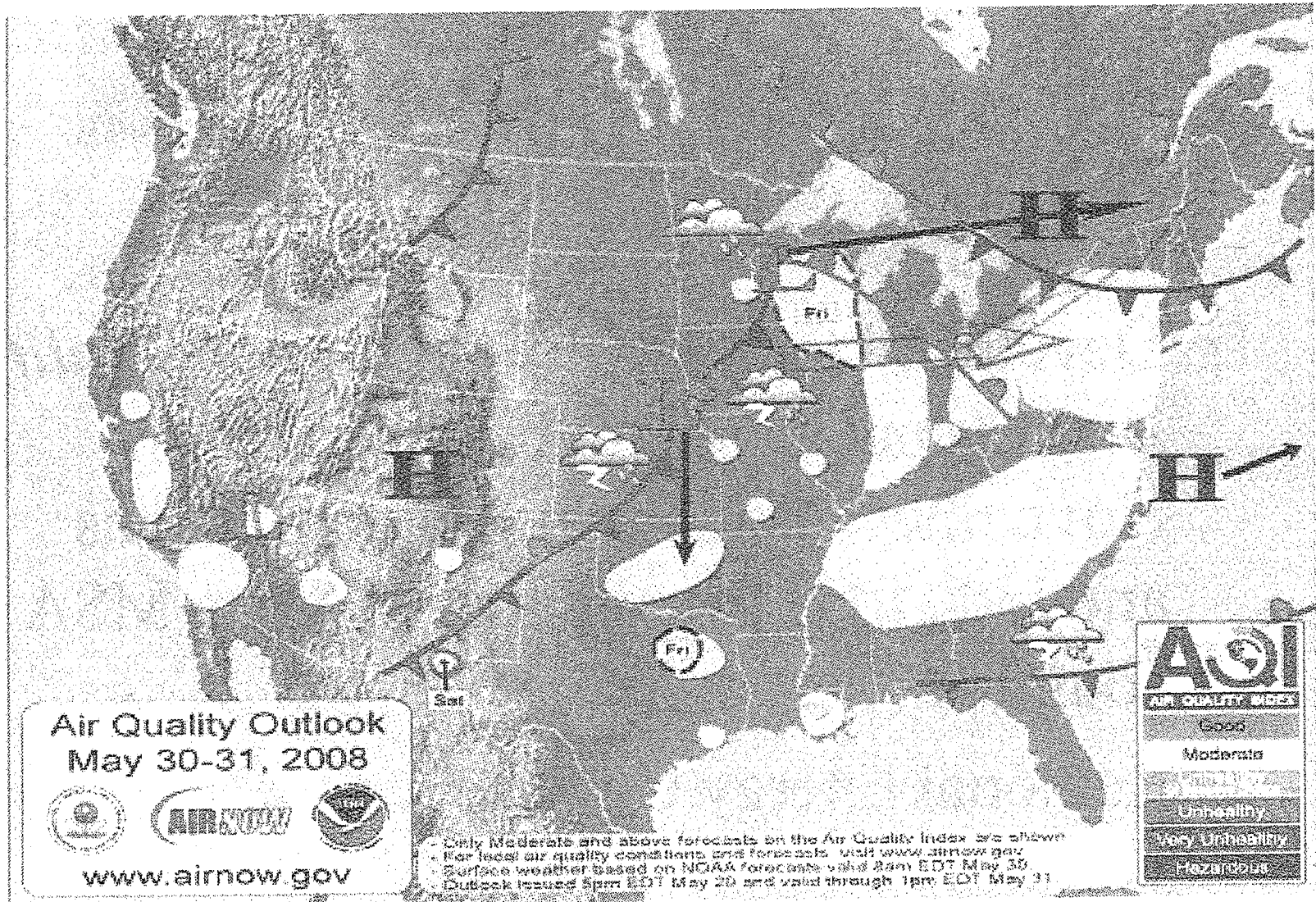
## Air Quality Guide for Ozone

Air Quality	Air Quality Index	Protect Your Health
Good	0-50	Everyone can enjoy outdoor activities.
Moderate	51-100	Unusually sensitive people should consider limiting prolonged outdoor exertion.
Unhealthy for Sensitive Groups	101-150	Active children and adults, and people with respiratory disease such as asthma, should limit prolonged outdoor exertion.
Unhealthy	151-200	Active children and adults, and people with respiratory disease such as asthma, should avoid prolonged outdoor exertion. Everyone else, especially children, should limit prolonged outdoor exertion.
Very Unhealthy	201-300	Active children and adults, and people with respiratory disease such as asthma, should avoid all outdoor exertion. Everyone else, especially children, should limit outdoor exertion.

For more information visit EPA's web site at <http://www.epa.gov>



10-23



**Health Tip: Cut back on strenuous outdoor exercise when air quality is expected to be unhealthy. Exercise during the early morning or late evening hours when ozone levels are at the lowest levels of the day. This is especially important for children and other sensitive groups.**

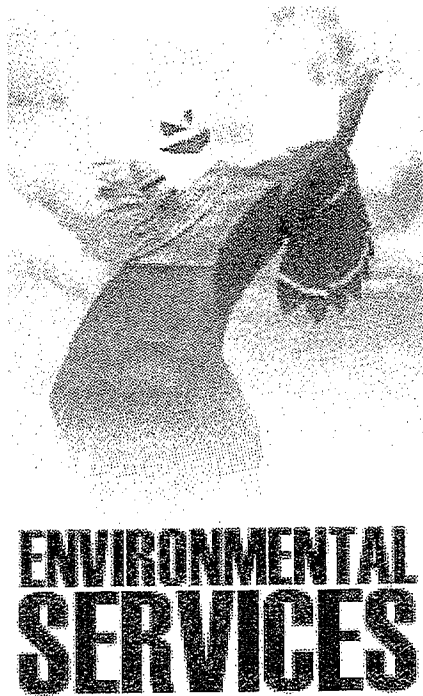


## Recent Actions

- Developed Community *Clean Air Quality Awards* program – to be rolled out in November – will include organizations and individuals in the four Wichita MSA counties
- Regional Energy Conference and Fair
  - January 31, 2009
  - WSU Hughes Metroplex
  - Sponsorships are available

5e-01



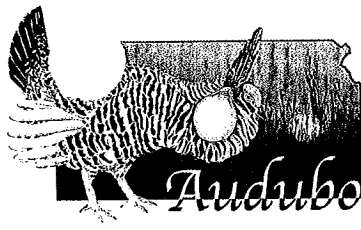


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Environmental Services Department  
City of Wichita  
1900 E. 9<sup>th</sup> Street  
Wichita, KS 67214  
(316)268-8351

D. Kay Johnson, Director

[http://www.wichita.gov/CityOffices/Environmental/Air  
Quality/](http://www.wichita.gov/CityOffices/Environmental/AirQuality/)

6-26



*Audubon of Kansas*

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Friday, January 22, 2010

## Statement to the Kansas Senate Natural Resources Committee By Ron Klataske, Executive Director, Audubon of Kansas Regarding Prescribed Burning and Smoke Management in the Flint Hills

We appreciate the opportunity to share our perspective on this important subject. Audubon of Kansas is a statewide membership organization devoted to wildlife conservation, prairie stewardship and environmental protection.

As most members of the committee know, controlled burning is a valuable tool for management of native prairie grasslands and rangelands in the Flint Hills. Controlled burning can often be designed, or as it is often referred to “prescribed,” to control woody plant invasion (especially eastern red cedars), invasive non-native cool season grasses, and remove excessive “thatch” which can otherwise reduce plant community vigor. Pasture burning, annually or in a rotation of approximately three years, has also proven to optimize livestock performance and weight gains—especially with yearling stockers.

We also recognize the importance of protecting air quality.

We are hopeful that concerns to accomplish both objectives can converge to build a broader base of common ground and management support--and thereby offer interested landowners with more partnership options with other entities and more resources to accomplish their objectives.

Excessive restriction of controlled burning would be detrimental to the financial interests of livestock producers in the Flint Hills, and to the prospects of preserving the existing pastoral and natural character of this signature Kansas landscape—of which native tallgrass prairie is the unique and essential central fabric.

Without a doubt, many wildlife species—including the iconic Greater Prairie-chicken—would benefit if large landscape areas that are now almost totally burned off annually were to be replaced with patchwork patterns of areas that were burned less frequently. By the same token, rangelands that are currently never burned and growing up in cedars would benefit from prescribed burning. In an ideal landscape maybe a third of the native rangelands would be burned

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*Audubon of Kansas is a nonprofit membership organization devoted to wildlife and prairie conservation in Kansas and America's heartland. Headquarters: Burroughs A.S. - Kansas City; Jayhawk A. S. - Lawrence; Kanza A. S. - Emporia; Leavenworth A. S.; Northern Flint Hills A. S. - Salina; Sperry-Galligar A. S. - Pittsburg; Southeast Kansas A. S. - Parsons; Topeka A. S.*

Senate Natural Resources

01-22-10

Attachment 7

each year. There would be public benefits in terms of air quality, prairie and wildlife conservation. However, in our opinion, range landowners and livestock producers should not have to bear the costs of reductions in livestock gains and financial rewards that are currently realized from annual burning that are a part of their business operations. It would be appropriate for other entities to share in the added costs associated with prescribed burns on a less frequent basis.

During the past few months, the USDA Natural Resources Conservation Service, in consultation with the State Technical Committee in Kansas (an advisory group representing diverse agricultural and conservation interests) approved and expanded a new program within the Environmental Quality Incentive Program to assist landowners with funding and technical assistance to utilize prescribed burning and other practices to benefit Greater and Lesser Prairie-chickens. For landowners *who elect* to use patch burning practices, or controlled burning of different parcels on three-year rotations, this program and similar programs can obviously become centerpieces of, or complement any, Smoke Management Plan that is developed for the region. Funding of this nature should be used to compensate rangeland managers who are voluntarily enrolled to provide public health and ecological benefits.

I believe it would be highly beneficial if the State of Kansas, EPA, and the U.S. Fish and Wildlife Service joined NRCS in helping to provide financial support for expansion of this program. It would also be beneficial if fire management equipment would be acquired and made available to landowners who are working together to successfully burn and control range fires. This would make it more feasible for them to employ prescribed burns when weather conditions are most favorable to minimize smoke intrusions. Public programs to assist and voluntary partnerships with range landowners and managers should be the foundation and blueprint for the envisioned Smoke Management Plan.