



# Air Toxics Study

## Rubbertown Community Advisory Council



Prepared in collaboration with the University of  
Louisville, School of Public Health Depts.  
Epidemiology and Clinical Investigation Sciences and  
Occupational and Environmental Health

# The Courier-Journal

NEWSPAPER • LOUISVILLE, KENTUCKY

www.courier-journal.com

THURSDAY, MAY 22, 2003 • 50 CENTS

## Air tests show cancer risks

**TOXIC  
AIR  
LINGERING  
HEALTH  
MENACE**

### Strategies to fight air pollution

A draft proposal outlines potential strategies for dealing with elevated levels of hazardous air pollutants in the Louisville metro area. **A5**

### Measuring risk of cancer, other illness

A chart analyzing the results of monitoring for air pollution shows an increased risk of cancer or other illnesses at 13 monitors around the community. Also, a glossary of

## Unsafe level of pollutants found in Louisville

By **JAMES BRUGGERS**  
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The Courier-Journal

All 13 air-quality monitors in a Louisville-area study recorded concentrations of toxic pollutants that over time could significantly increase a person's risk of cancer or other health problems, according to an unreleased draft report obtained by The Courier-Journal.

The report, from an environmental consulting firm, confirms

ed last week: That at least some Louisville area residents face excessive health risks from exposure to hazardous air pollutants.

The draft report found 26 chemicals or other compounds at concentrations that exceed levels that the U.S. Environmental Protection Agency and local officials consider safe - for example one additional cancer case in 1 million people. The report predicted that among the monitoring sites, there would be between 130

would be among the highest in the nation, said Mitchell Small, an environmental engineering professor at Carnegie Mellon University. Small assisted the newspaper on its own analysis of the air monitoring data and was told of the draft report's findings yesterday. He compared them to national EPA risk projections.

"The cumulative cancer risks ... in the Louisville area are at or above the highest values previously estimated by the EPA for

or consultant to the EPA's Science Advisory Board engineering committee since 1985, and is an expert in the mathematical modeling of environmental quality.

They warrant "serious consideration by public officials," he said.

The consultants focused their attention on four compound they said presented the greatest risk:

■ 1,3-butadiene, used in the manufacture of synthetic rubber







# Three Classes of Air Pollution

- Ozone
- Particulates
- Air Toxics



# Ozone

- What – a gas ( $O_3$ ) created by a chemical reaction between oxides of nitrogen ( $NO_x$ ) and volatile organic compounds (VOCs) in the presence of heat and sunlight
- Health impacts – wheezing, coughing, pain when taking a deep breath, and breathing difficulties during exercise or outdoor activities



# SOURCES OF SMOG-CAUSING EMISSIONS

(for Jefferson and adjacent portions of Bullitt and Oldham counties)

## VOLATILE ORGANIC COMPOUNDS

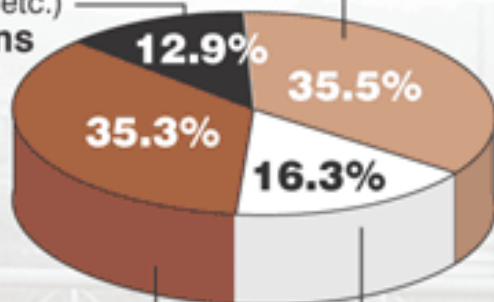
116.44 tons per summer day,  
% of total

**Off-road sources:**  
(construction equipment,  
farm equipment, aircraft,  
boats, locomotives, lawn  
mowers, etc.)

15.1 tons

**Point sources:**  
Industrial stacks

41.3 tons



**Mobile sources:**  
(cars, trucks and  
motorcycles)

41.1 tons

**Area sources:**  
(gas stations, dry-  
cleaners, auto body  
shops, etc.)

18.9 tons

## NITROGEN OXIDES

211.22 tons per summer day,  
% of total

**Off-road sources:**  
(construction equipment,  
farm equipment, aircraft,  
boats, locomotives, lawn  
mowers, etc.)

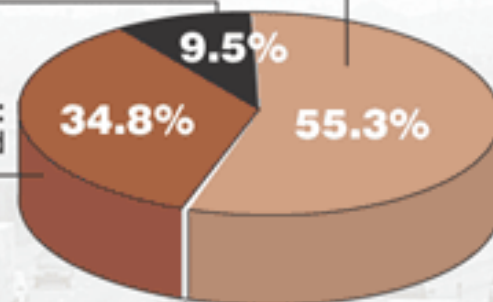
20.0 tons

**Point sources:**  
Industrial stacks

116.9 tons

**Mobile sources:**  
(cars, trucks and  
motorcycles)

73.6 tons



**Area sources:**  
(gas stations, dry-  
cleaners, auto body  
shops, etc.)

0.8 tons

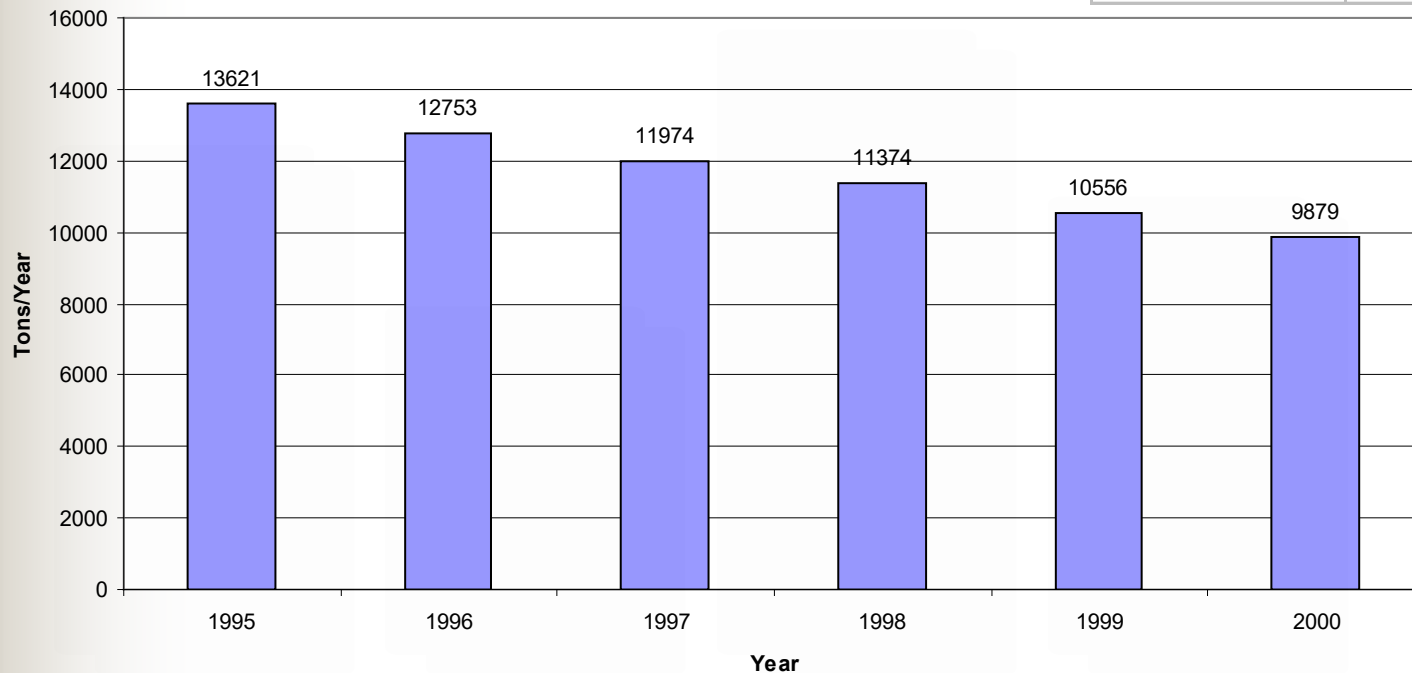
0.38%

SOURCE: LOUISVILLE METRO AIR POLLUTION CONTROL DISTRICT

BY JOANNE MESHEW, THE C-J

# Sources of Volatile Organic Compounds (VOCs)

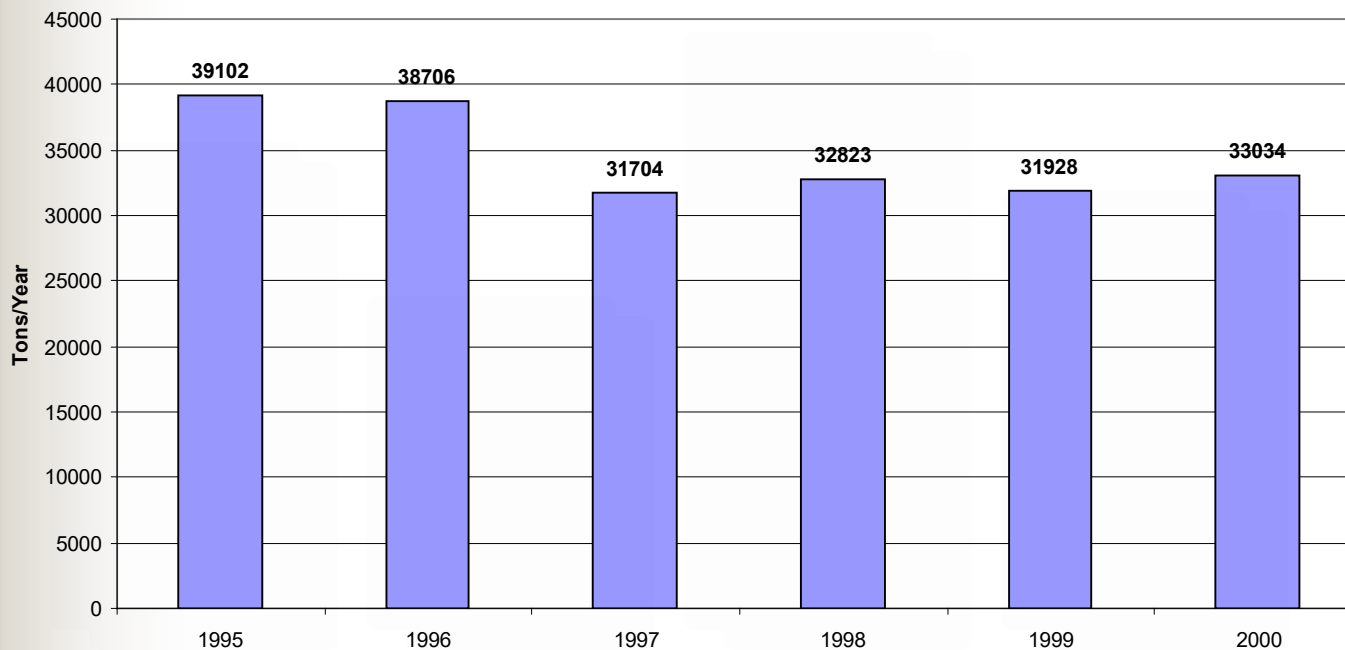
Volatile Organic Compounds			
Company	Total	2000 Rank	Share
Brown-Foreman Dist., Early Times	1,241.40	1	12.60%
Ford Motor Co., Ky. Truck Plant	971.98	2	9.80%
Ford Motor Co., Louisville Assy. Plant	964.97	3	9.80%
Heaven Hill Distilleries Inc.	923.31	4	9.00%
Reynolds Metals Plant #1	774.9	5	7.80%



**Source:  
The  
Courier-  
Journal**

# Sources of Nitrogen Oxides (No<sub>x</sub>)

Nitrogen Oxides			
Company	Total	2000 Rank	Share
Lou. Gas & Electric Mill Creek	20,589	1	62.30%
Lou. Gas & Electric Cane Run	7,508.80	2	22.70%
Kosmos Cement Co.	1,771.98	3	5.40%
Texas Gas Transmission Corp.	695.38	4	2.10%
American Synthetic Rubber	552.7	5	1.70%



**Source:  
The  
Courier-  
Journal**



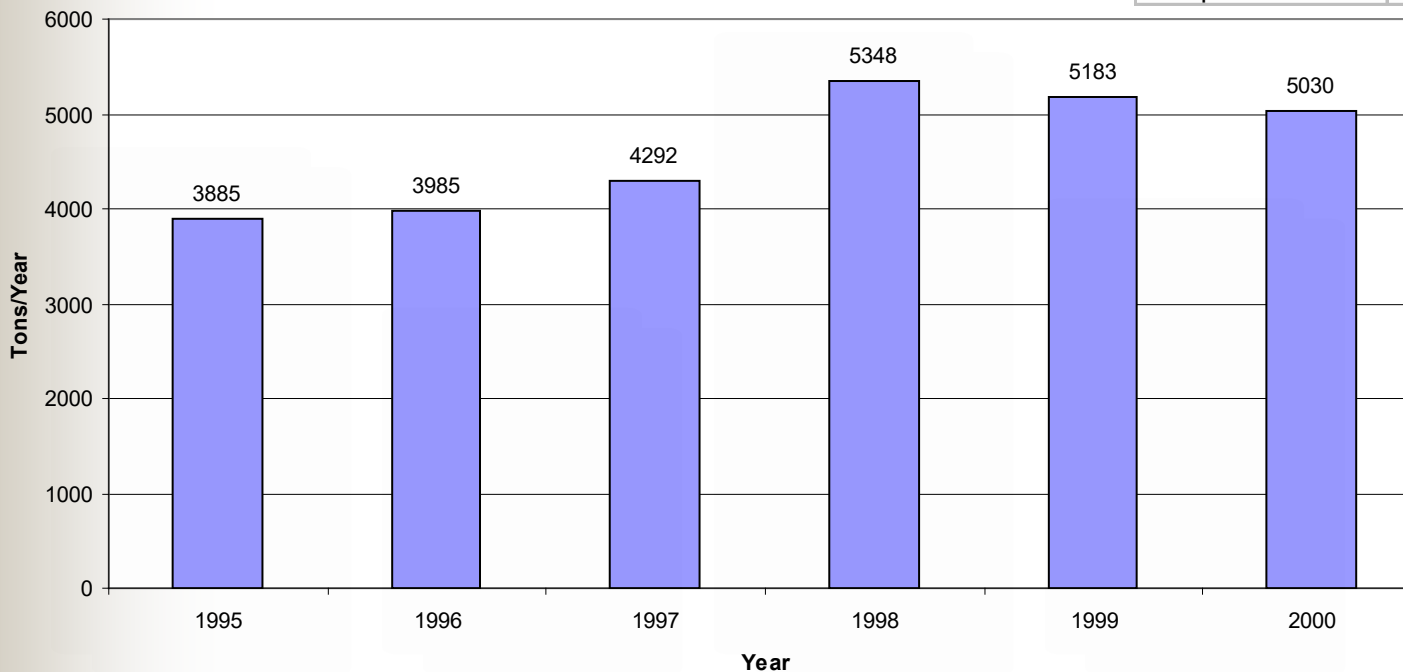


# Particulates

- What – particles in the air such as dust, dirt, soot, smoke, and liquid droplets
- Sources – cars, trucks, buses, factories, construction sites, tilled fields, unpaved roads, stone crushing, and burning wood
- Health impacts – asthma, coughing, breathing problems, chronic bronchitis, decreased lung function

# Sources of Particulates

Particulates			
Company	Total	2002 Rank	Share
Lou. Gas & Electric, Mill Creek	1,867.40	1	37%
Lou. Gas & Electric, Cane Run	1,316.00	2	26%
Kosmos Cement Co.	878.30	3	17%
Eckart Aluminum L.P.	81.32	4	1.60%
The Carbide/Graphite Group	77.69	5	1.50%



**Source:  
The  
Courier-  
Journal**



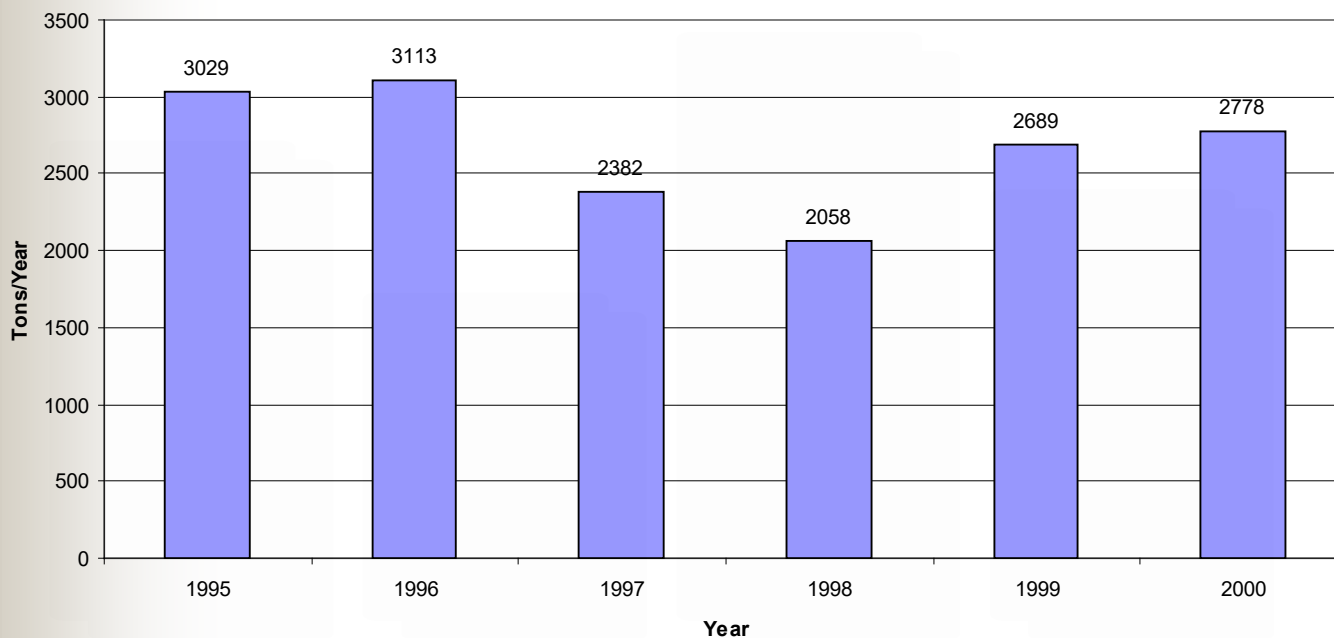
# Air Toxics

- What – pollutants that are known or suspected to cause cancer or other serious health effects
- Sources – Examples are benzene in gasoline; perchlorethylene emitted from some dry cleaners; methylene chloride used as a solvent and paint stripper by a number of industries; plus dioxin, asbestos, toluene, cadmium, mercury, chromium, and lead compounds
- Health impacts – cancer, damage to the immune system, nerve damage, reproductive problems



# Sources of Air Toxics

Hazardous Air Pollutants			
Company	Total	2000 Rank	Share
American Synthetic Rubber	567.27	1	20.30%
Ford Motor Co., Louisville Assy. Plant	483.21	2	17.30%
Ford Motor Co., Ky. Truck Plant	390.66	3	14%
DuPont Dow Elastomers	302.14	4	10.80%
Rohm and Haas Co.	158.87	5	5.70%

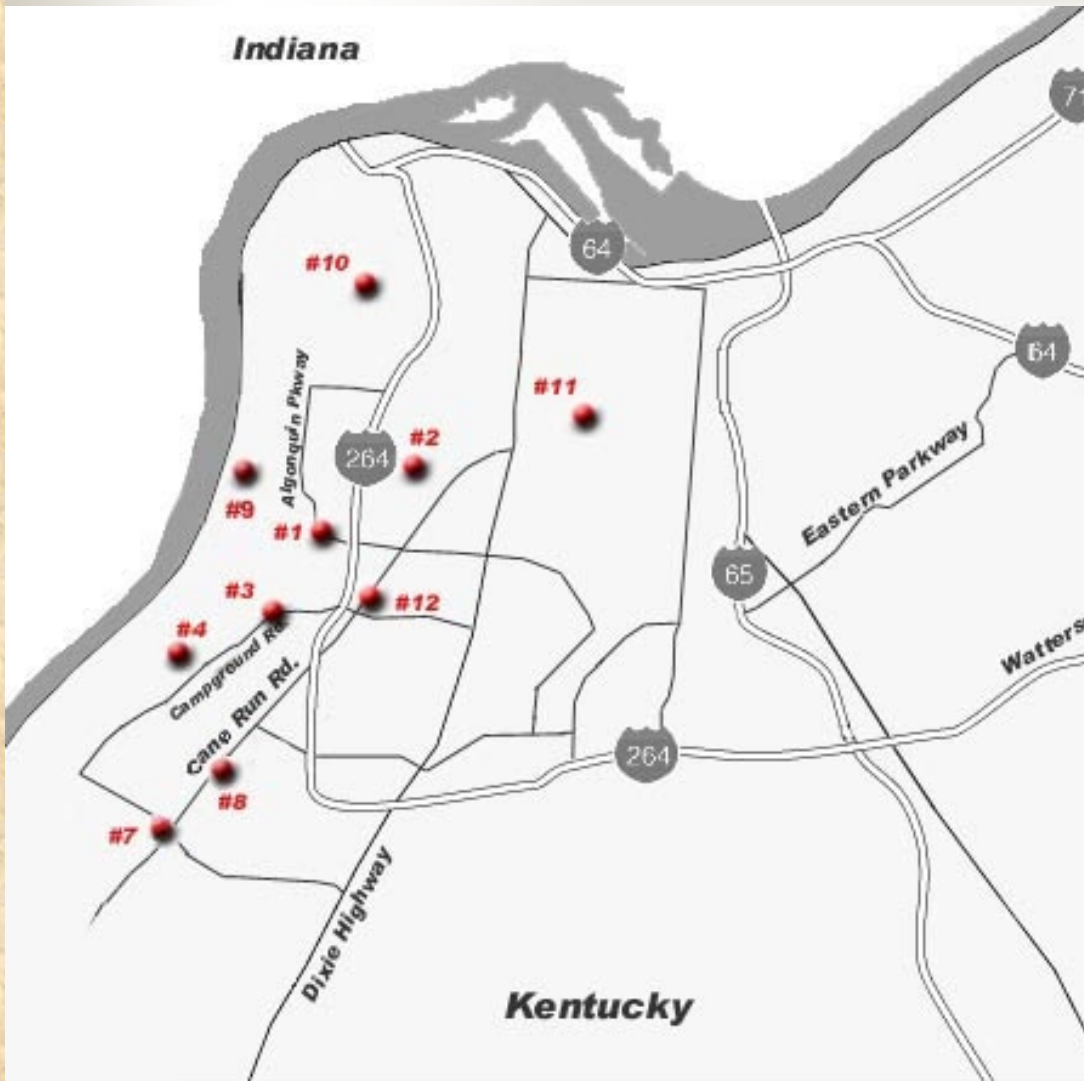


**Source:  
The  
Courier-  
Journal**



# Air Toxics Study

- Based on concerns of the community
- Purpose – to see if west Louisville residents are exposed to dangerous levels of toxins in the air
- Only west Louisville studied, with two control monitors to measure upwind and downwind concentrations
- Joint effort of the West County Community Task Force, U of L, EPA, Metro Air Pollution Control District, and Rubbertown companies.
- Monitored between April 2000 and April 2001



- 12 air sampling locations throughout the area
- 24-hour samples collected every 12<sup>th</sup> day for a year at each location
- Samples tested for more than 160 different chemicals





# Results

- 18 chemicals of concern that raise cancer risk above 1 in a million if exposed to the same levels 24 hours a day for 70 years
- All monitors – including one in Otter Creek Park upwind from Jefferson County – showed increased risk, suggesting regional problem, not unique to West Louisville
- Acute health effects are unlikely



# Top Chemicals of Concern

## ■ Butadiene

- Sources: Vehicles, 3 manufacturers (plans in place to reduce)

## ■ Chromium

- Sources: Electricity generation, boilers, plating

## ■ Acrylonitrile

- Sources: 2 manufacturers (plans in place to reduce)



# Should I be concerned?

- We should all be concerned about air quality and look for ways to reduce emissions of chemicals
- And we should keep the risks in perspective
  - Risk based on 70 years of exposure, 24 hours a day
  - About 40% of people nationwide develop cancer from all causes

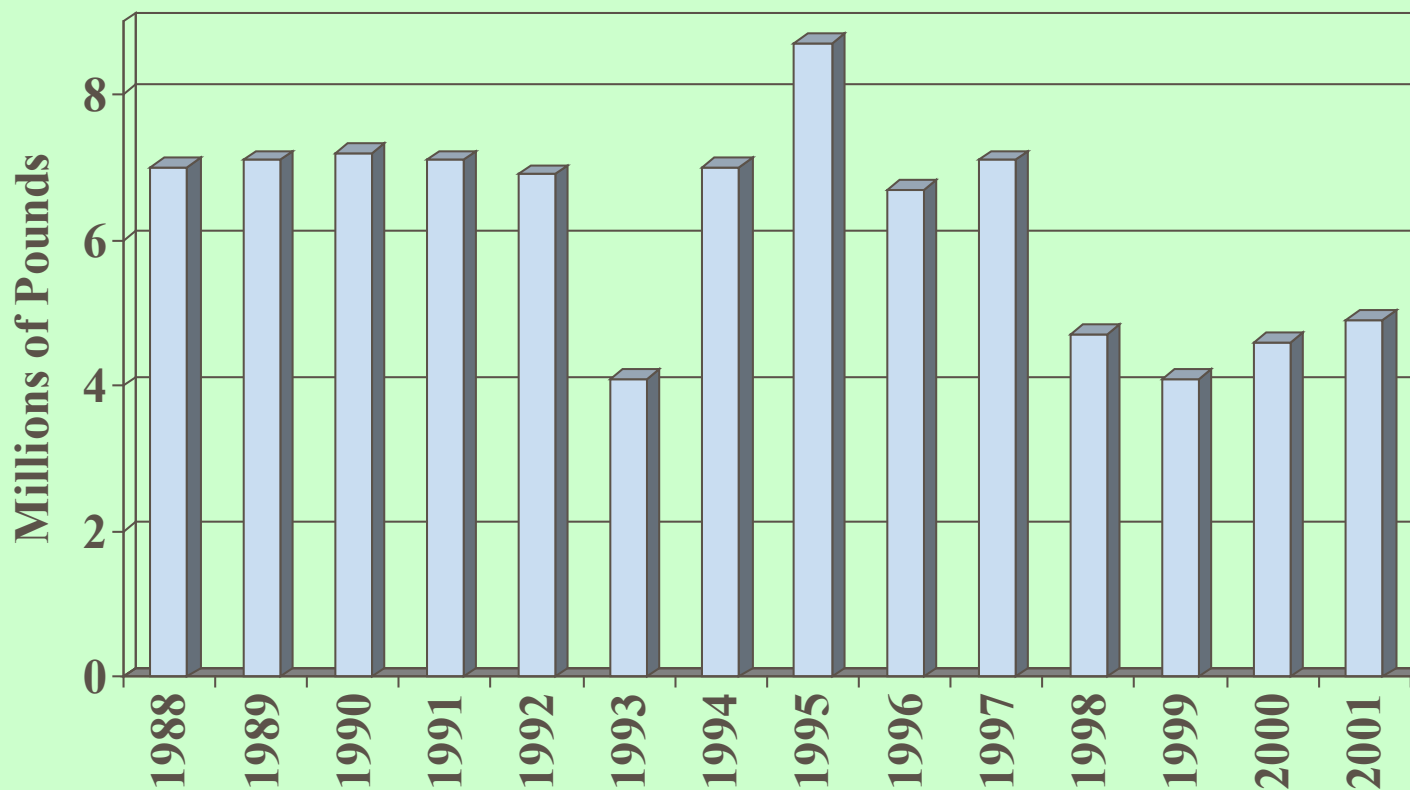




# What Can We Expect Next?

- Implementation of the Risk Management Plan
- More studies on health effects from toxic chemicals, VOCs, and particulates
- More air sampling
- More discussion of vehicle emissions and VET testing
- More media attention

# Rubbertown Air Emissions





## To join or for information about RCAC

- Contact Charlie Hunton, facilitator
  - (502) 762-1731
  - [CGHunton@aol.com](mailto:CGHunton@aol.com)
- RCAC meets monthly, second Thursday of the month, 5:30 - 8 p.m.; locations vary
- To find out about an incident at any of the plants, call 574-2580