

Emissions of Hydrocarbons
and Oxides of Nitrogen in
the Greater Cincinnati
Area

Why Inventory VOC & NOx?



Major components of ozone

Oxides of Nitrogen (NOX) - combustion of fuel - example power plants

Hydrocarbons/Volatile Organic Compounds (VOC) - solvent evaporation
example - printing press

Focus on VOC Inventory



- Limiting VOC - initial control strategy used to limit ozone formation
- VOC can be HAPS (Hazardous Air Pollutants)
- VOC sources more diverse than NOX

Obtaining a VOC Inventory

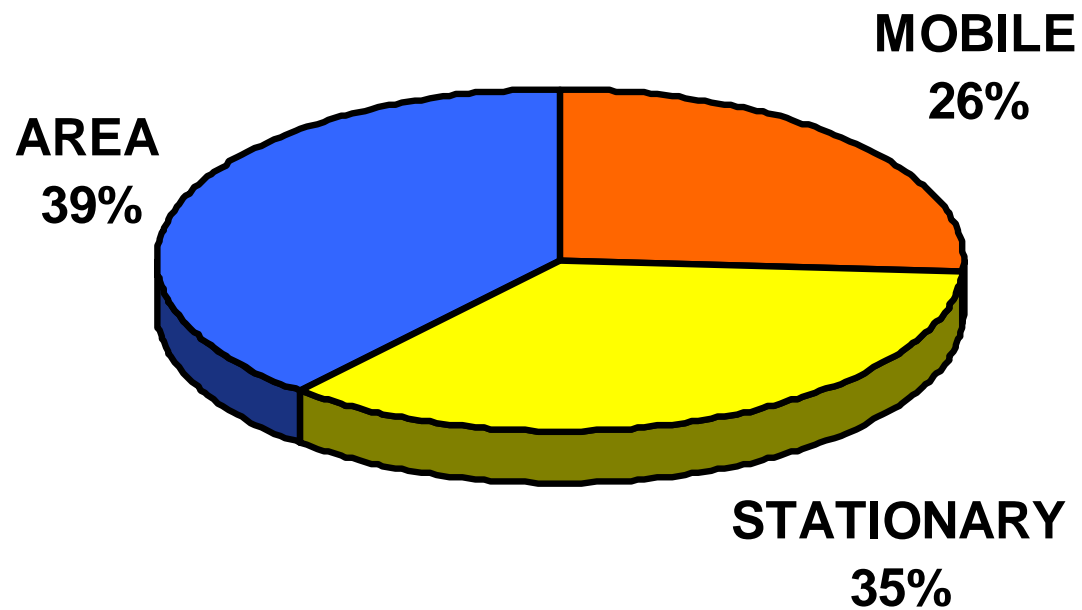


- HCDOES surveys *stationary* sources annually for *potential* emissions of 10 tons per year (TPY) of VOC.
- Ohio-Kentucky-Indiana (OKI) Metropolitan Planning Organization uses a computer model to project *mobile* source emissions.
- "*Area*" sources were estimated by Ohio EPA for the 1990 base year

Official Inventory

VOC Emissions 1999

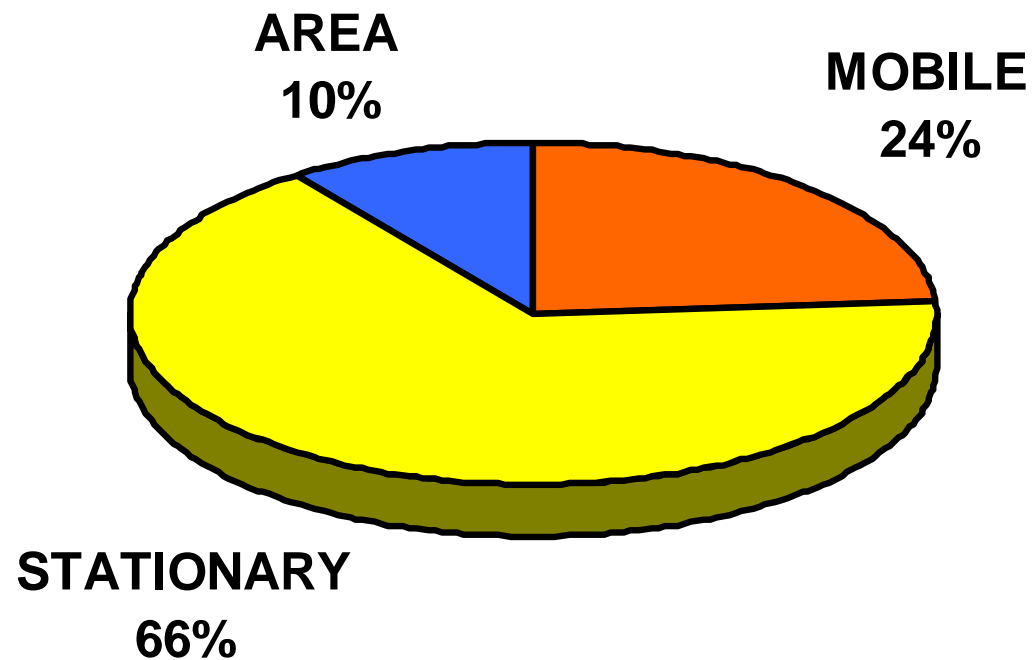
Total: 234 TPD



Official Inventory

NOX Emissions 1999

Total: 463 TPD



HCDOES - OKI Inventory



- What is the value of an EIS inventory?
- Mobile source breakout -
commuters vs. shoppers / errands
- Reassignment of "area sources"
industrial equipment, off road vehicles

Regrouped Sources continued



- Mobile sources include cars, trucks, planes, boats, trains and off-road vehicles.
- Consumer sources do not include degreasing operations or industrial equipment.

Smog Sources - Hydrocarbons

SW Ohio & N Kentucky -1995

Consumer 29%

76 tons/day

OTHER AUTO TRIPS 21%

Mobile 45%

117 tons/day

COMMUTING 11%

TRUCKS,BUSES 4%

AIRPLANES,OFF-ROAD 8%

DEGREASING 5%

HOME PRODUCTS 6%

PAINTING 12%

LAWN,GARDEN 7%

SMALL BUSINESS 5%

INDUSTRIAL EQUIPMENT 7%

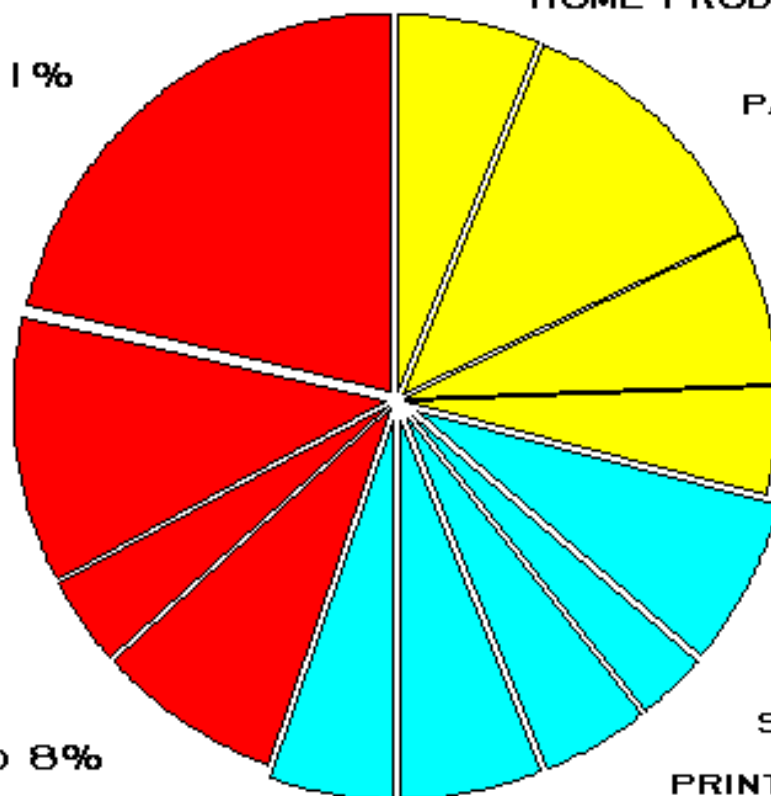
STEEL MANUFACTURE 3%

PRINTING,SOLVENTS 5%

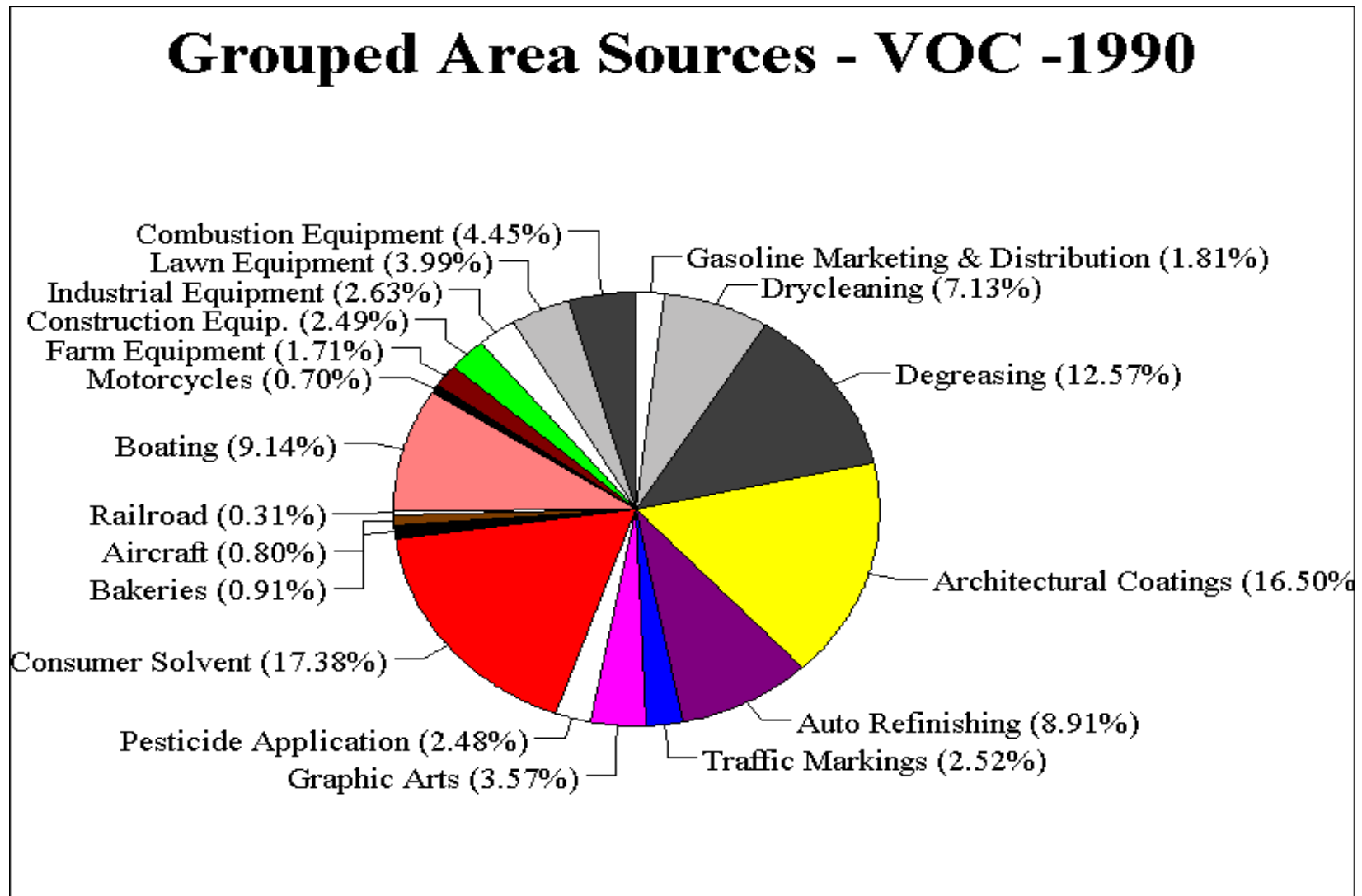
CHEMICAL,PETROLEUM,FOOD 6%

Industrial 26%

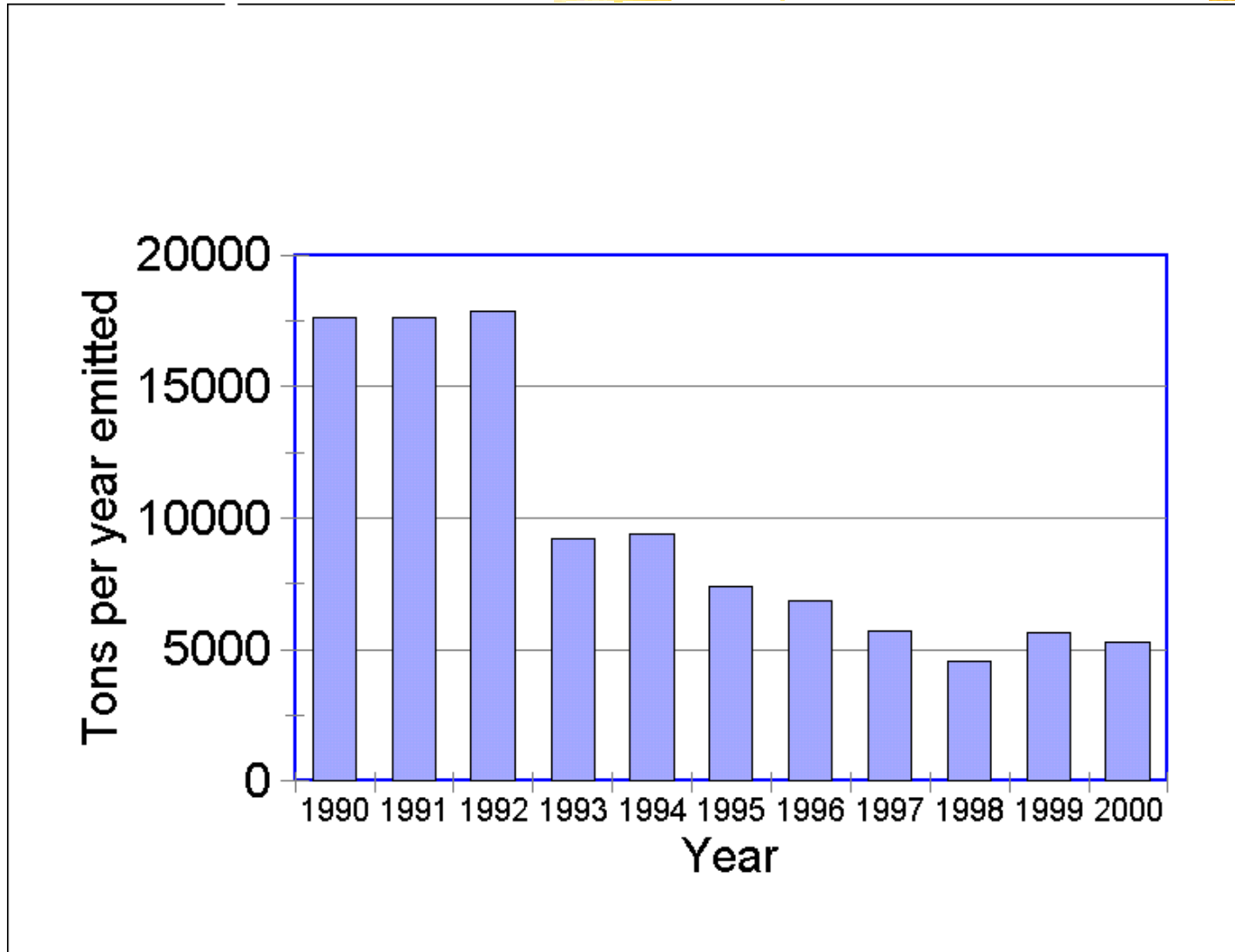
69 tons/day



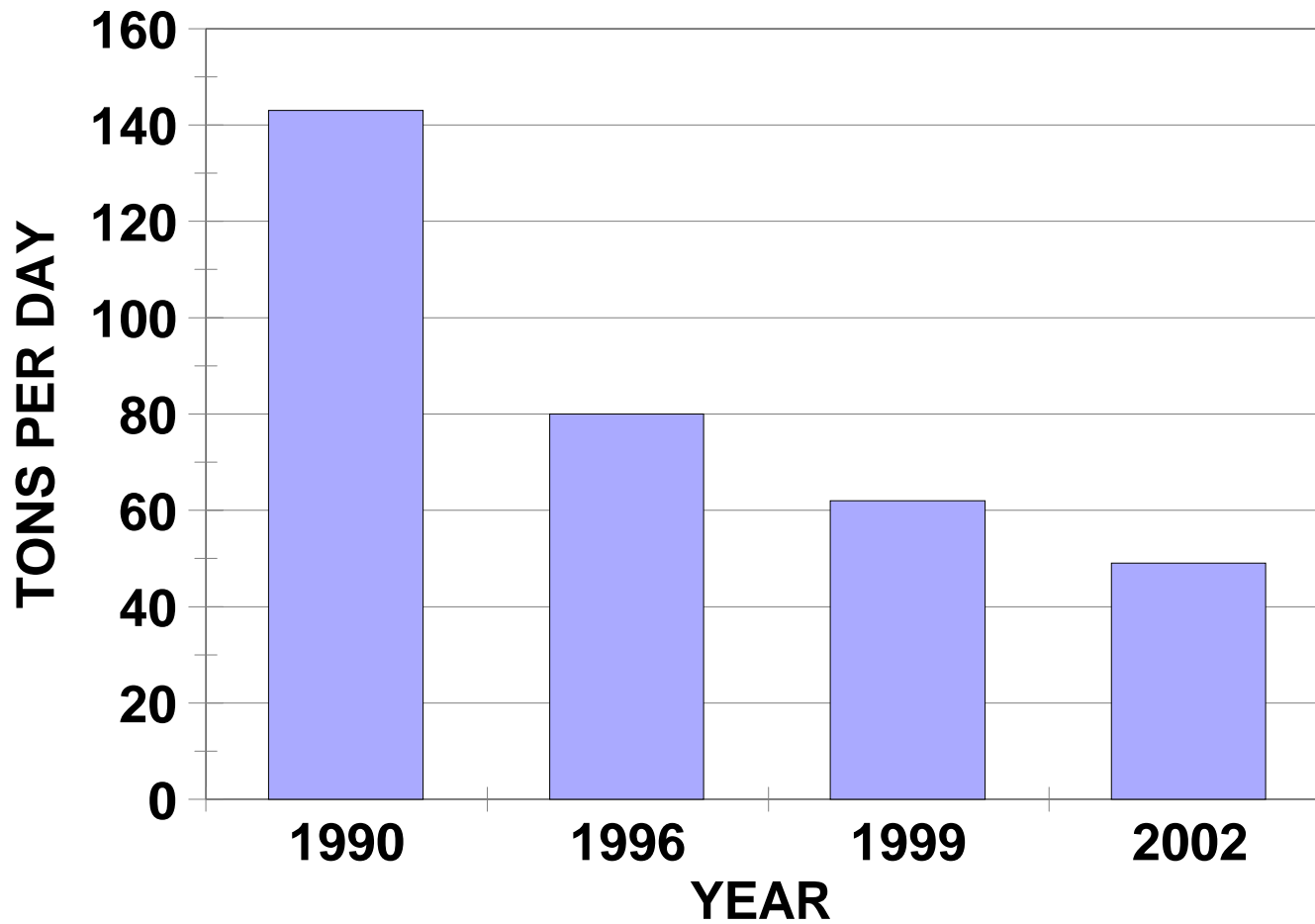
Area Source categories



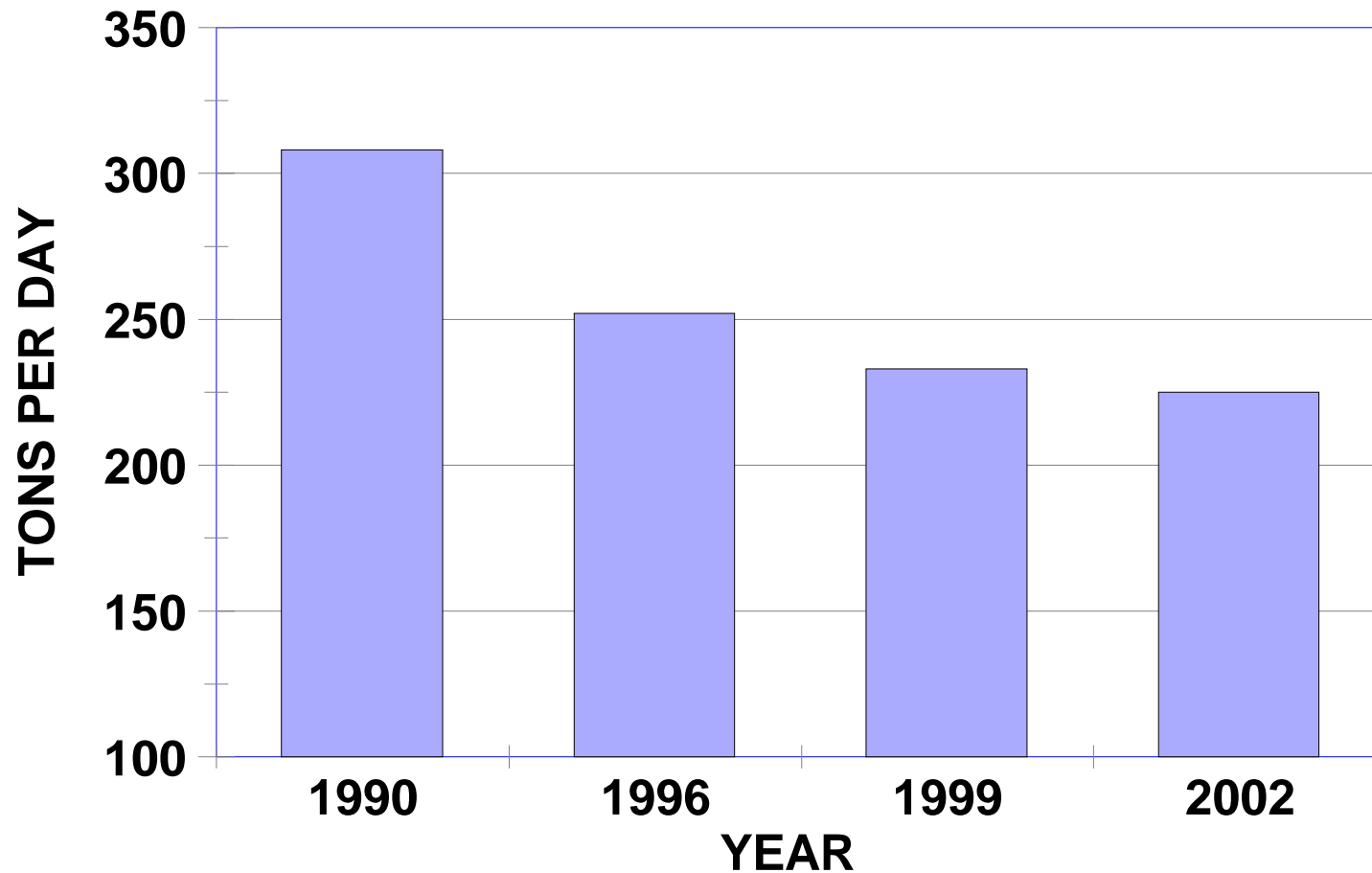
VOC Trend in SW Ohio - HCDOES Stationary Sources



Mobile Sources VOC Trend - OKI



Official Projected VOC Trend (Stationary, Mobile and Area Sources)

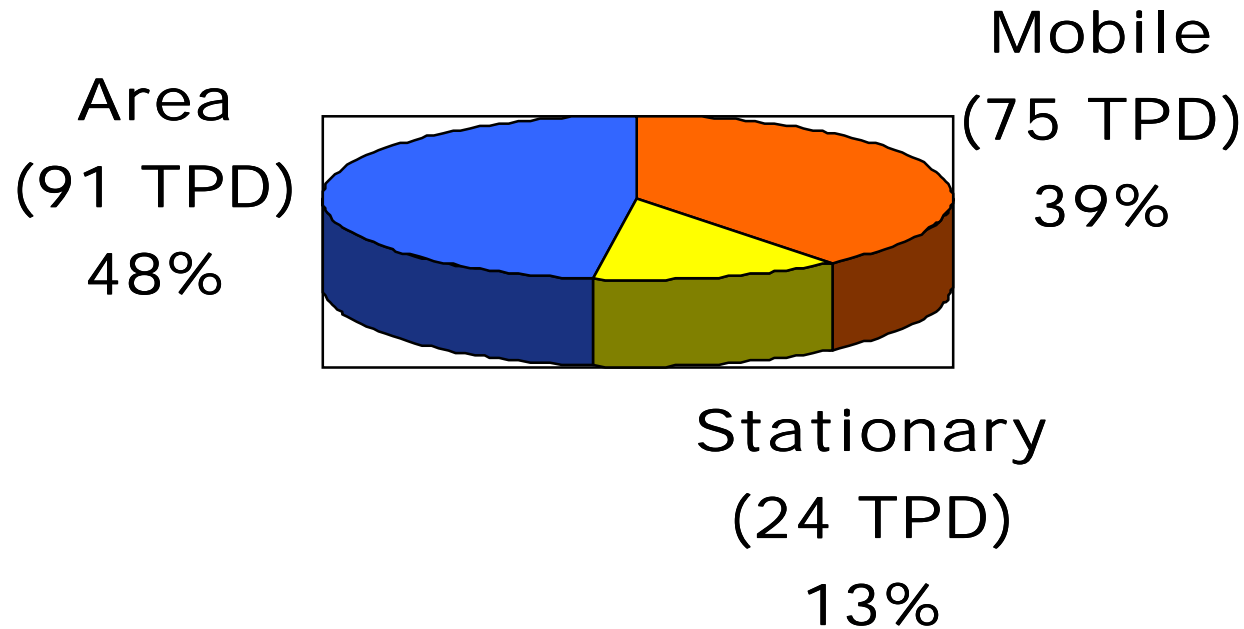


Conclusion



- **Stationary** source VOC emissions are now one third of 1990 levels.
- **Mobile** source VOC emissions are now one third of 1990 levels.
- **Area** source VOC emissions have the greatest uncertainty, and this part of the inventory will be revised.

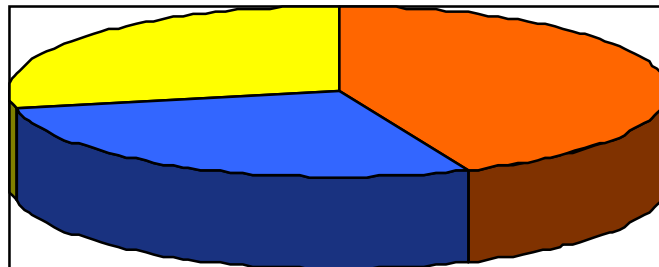
2000 VOC Emission Inventory- (Estimated Area and Calculated Mobile and Stationary)



Regrouped Sources 2000 Data

Industrial
(56 TPD)

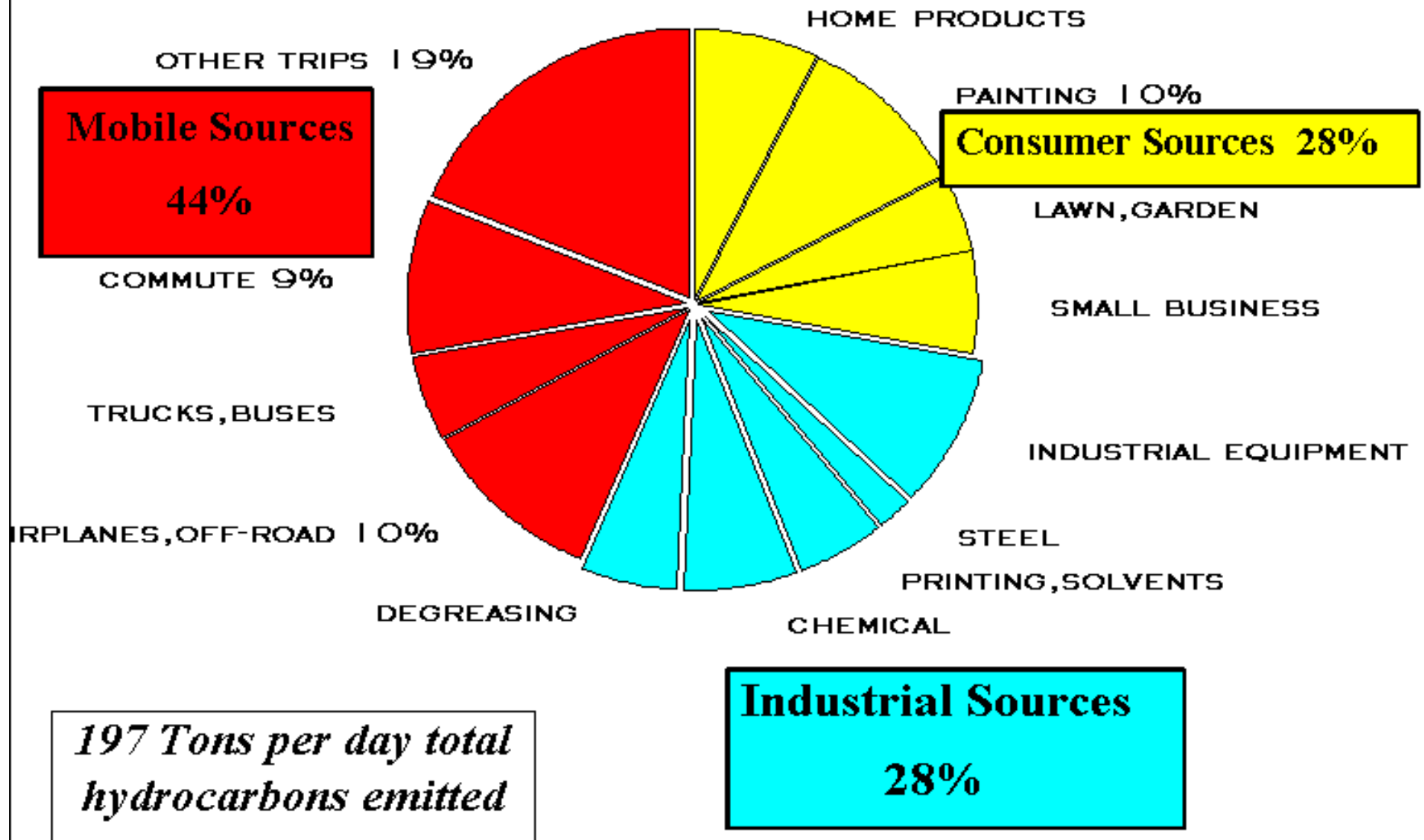
28%



Mobile
(86 TPD)
44%

Consumer
(55 TPD)
28%

Smog Sources - Hydrocarbons
SW Ohio & N Kentucky





Non Technical Questions?

Current Estimated VOC Inventory

Smog Sources - Hydrocarbons
SW Ohio & N Kentucky

