

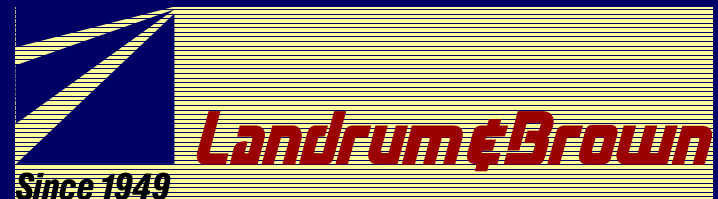
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# **The Airport in the Region**

**Presented by  
Mark R. Johnson, AICP  
Landrum & Brown, Inc.**



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# **The Airport in the Region**

***Socio-economic Factors in the Growth of Aviation***

***Economic Development***

***Environmental Impacts***

***Land Takings and Zoning Implications***

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# The Airport in the Region

***Socio-economic Factors in the  
Growth of Aviation***

# Airline Deregulation

**led to**

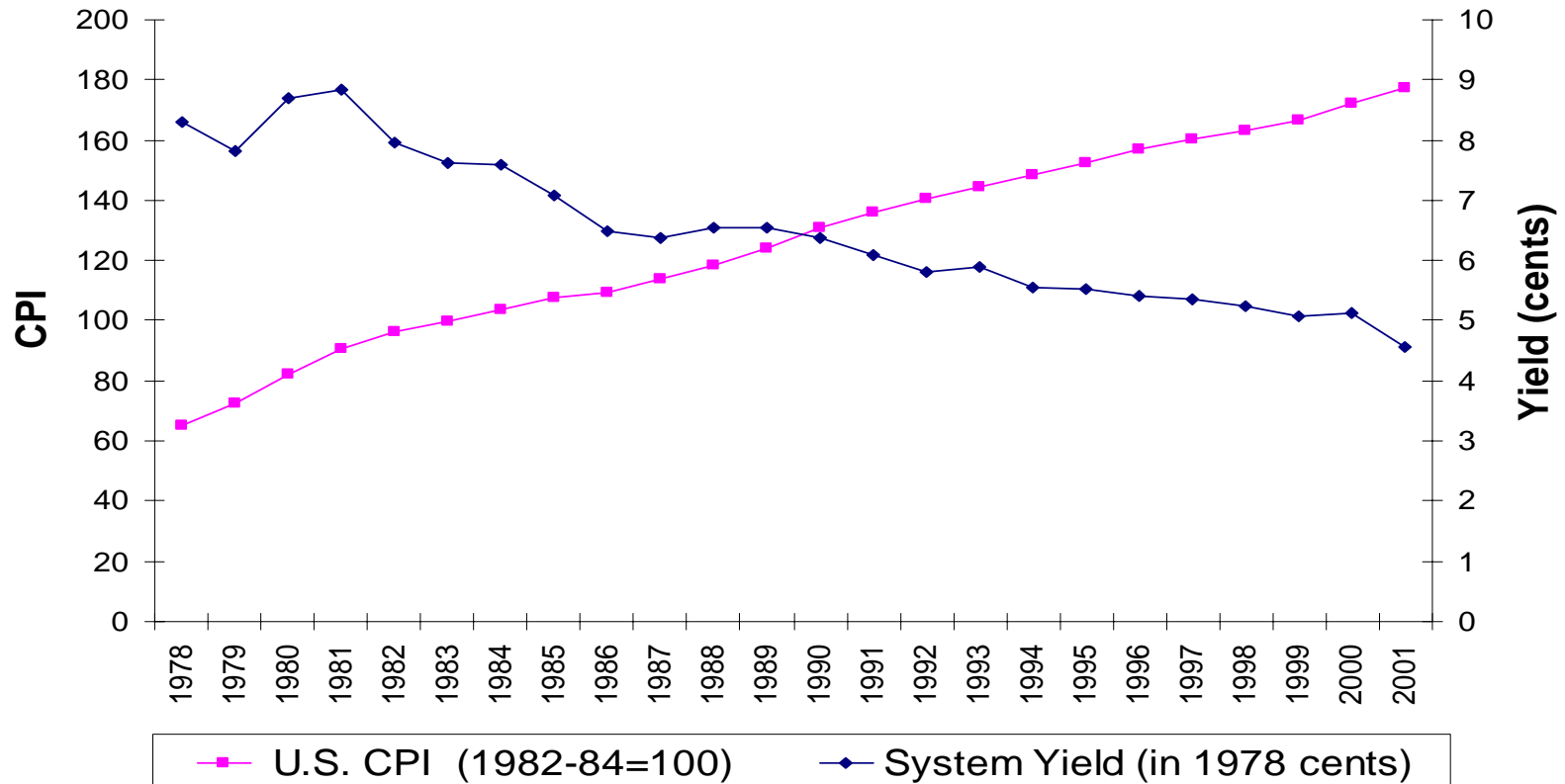
- Intense competition among airlines
- Relentless pressure to reduce costs
- Success of low-cost carriers
- Decline in real cost of air travel

# Technologies Driving Down Costs

- Jet aircraft in 1950s.
- Jumbo jets in 1970s.
- Two-pilot cockpit
- Increased fuel efficiency
  - Revenue passenger miles per gallon increased from 18 in 1975 to 39 in 2001
- Regional jets in late 1990s.
  - Fast, economical flights on low-density routes

# Decline in Real Cost of Air Travel

## Yield vs. U.S. CPI

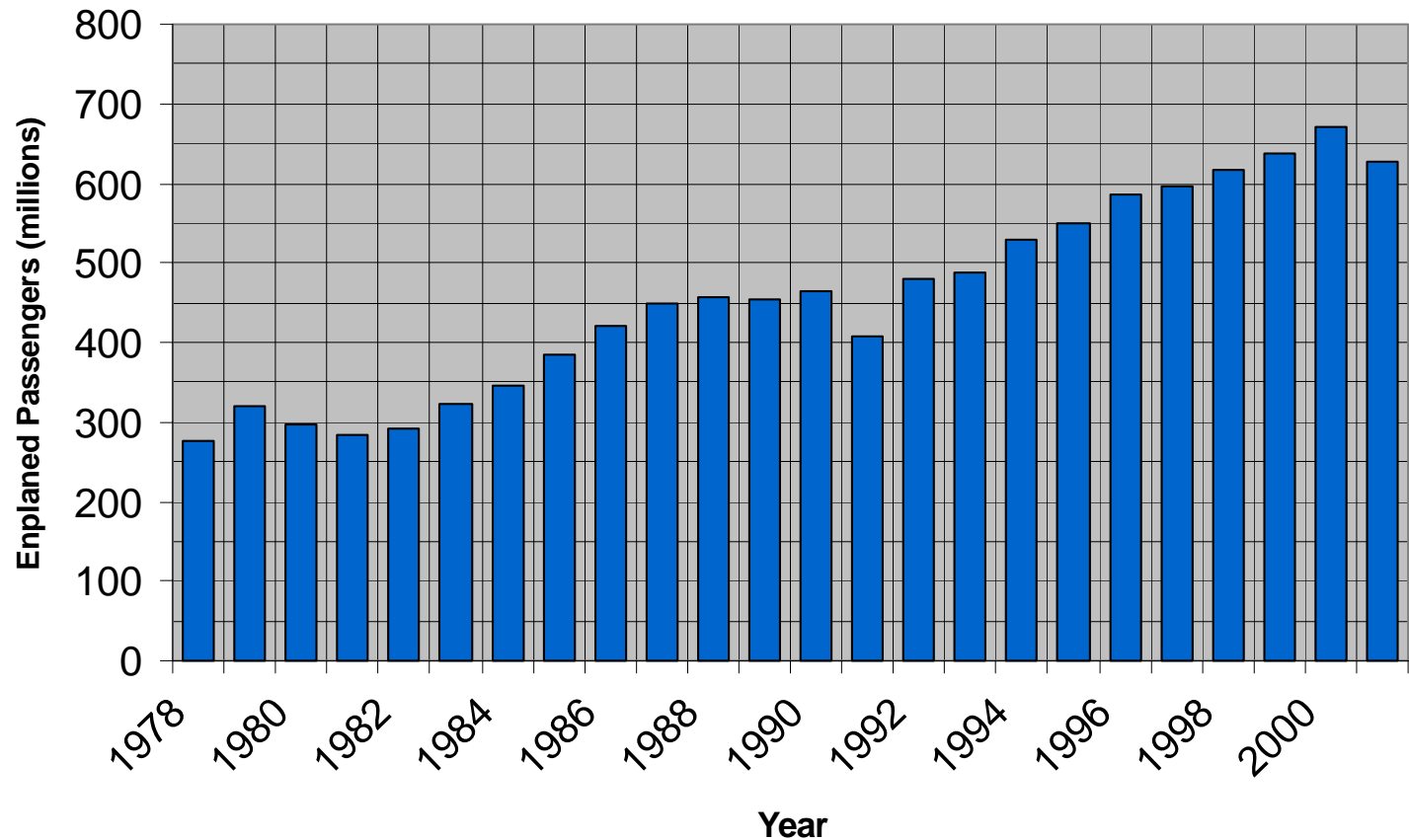


# Stimulants to Demand

- Economic globalization
- Changes in business models
  - Remote and branch offices
  - “Just-in-time” manufacturing and assembly processes
- Development of economical package express delivery systems

# Increase in Passengers

**U.S. Enplaned Passengers  
1978 to 2001**





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# The Airport in the Region

***Economic Development***

# Airports Generate Economic Activity

**in 2001, airports...**

- Created \$507 billion in economic activity
- Employed 1.9 million people
- Produced 4.8 million airport-related jobs in local communities

# Airports Are An Economic Development Focal Point

**examples...**

- Rickenbacker International Airport, Columbus, Ohio
- Scottsdale Airport, Scottsdale, Arizona

# Rickenbacker International Airport

- Former Lockbourne Air Force Base
  - Acquired by Franklin County in 1987
  - Now operated by Columbus Regional Airport Authority
- Specializes in air cargo
- Free trade zone
- Sixty companies, 18,711 jobs, \$1.8 billion in output

# Scottsdale Airport

- Owned and operated by City of Scottsdale, Arizona since 1967
- Industrial park developed adjacent to the airport: Scottsdale Airpark
  - 2,600-acre commercial area
  - 1,800 businesses
  - 30,000 employees

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# The Airport in the Region

***Environmental Impacts***

# Airport Environmental Impacts

- Aircraft noise
- Air quality
  - Aircraft
  - Ground service equipment
  - Landside motor vehicles
- Water quality
  - Stormwater runoff, spills, deicing
- Wildlife and birds

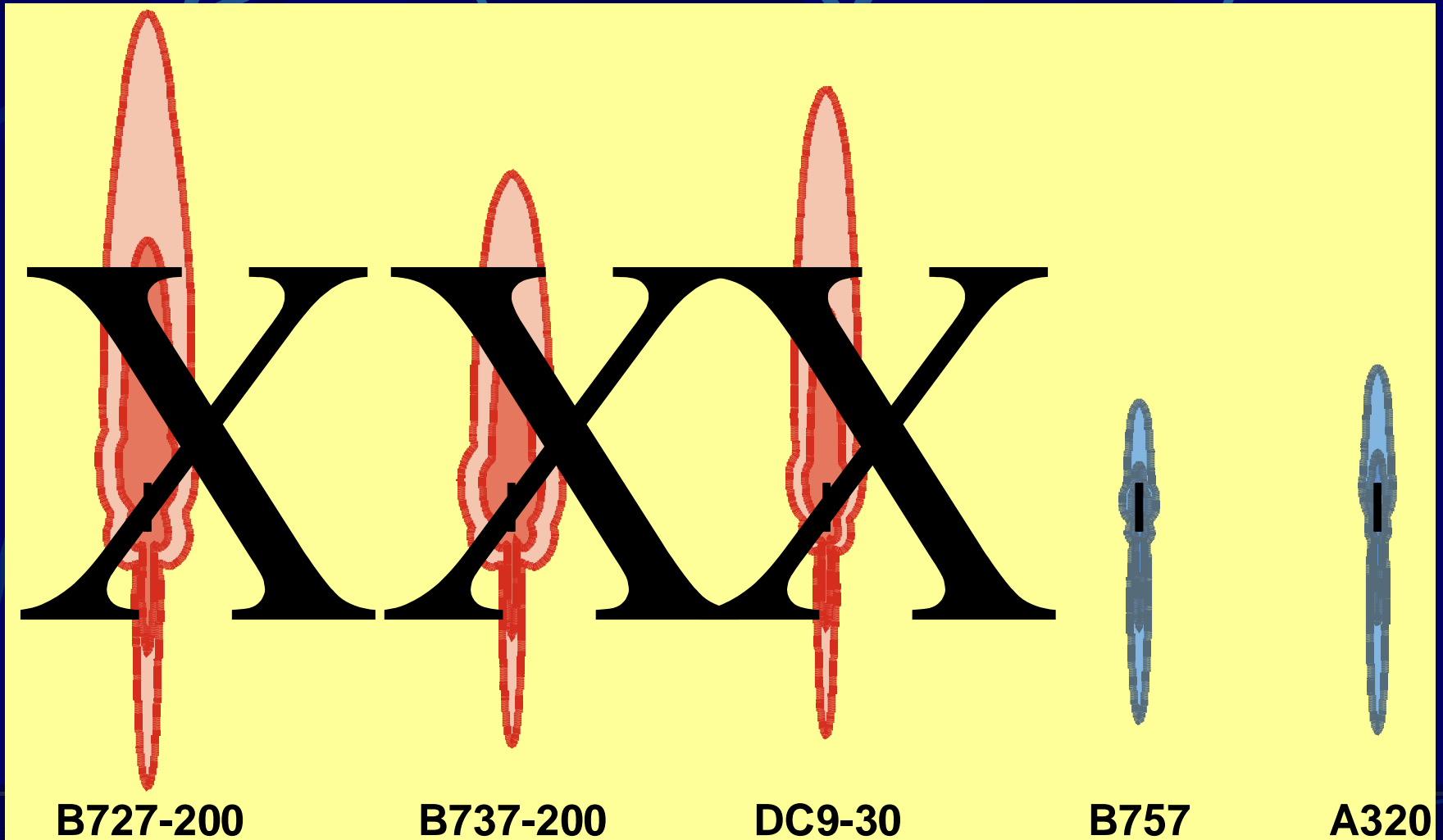
# Aircraft Noise

- Longstanding problem around airports
- Congressional action
  - Noise certification standards – Stages 1, 2, 3
  - Phase-out of loudest aircraft – Stages 1 & 2
  - Program for airport noise and land use compatibility planning – FAR Part 150
- Population exposed to significant noise...
  - Declined from 7 million in 1975...
  - to 0.3 million in 2002



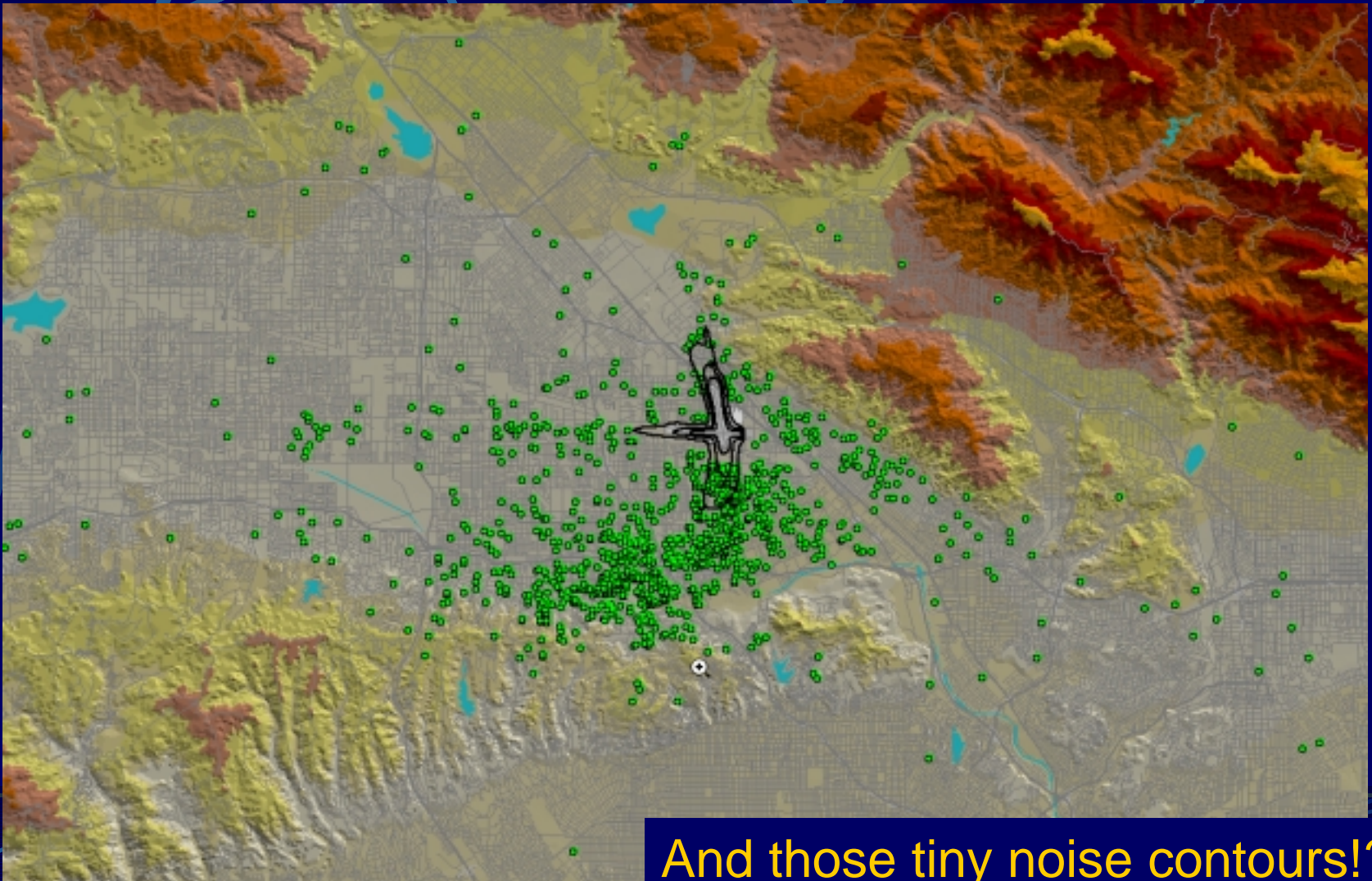
# Noise – Is the Cup Half Full?

the loudest aircraft are gone!



# Or Half Empty?

**Whoa! Look at those complaints!**



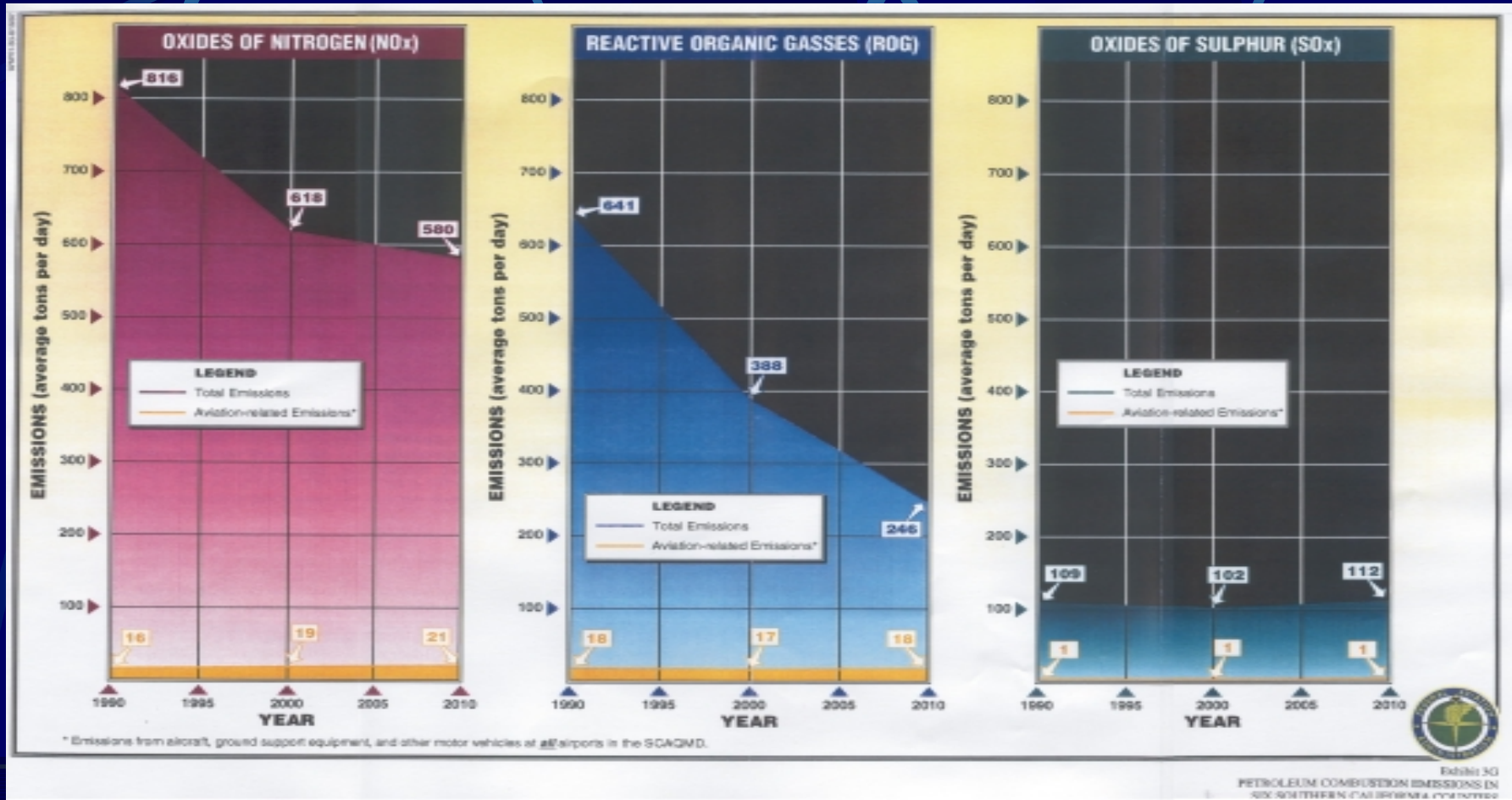
**And those tiny noise contours!?!**

# Air Quality

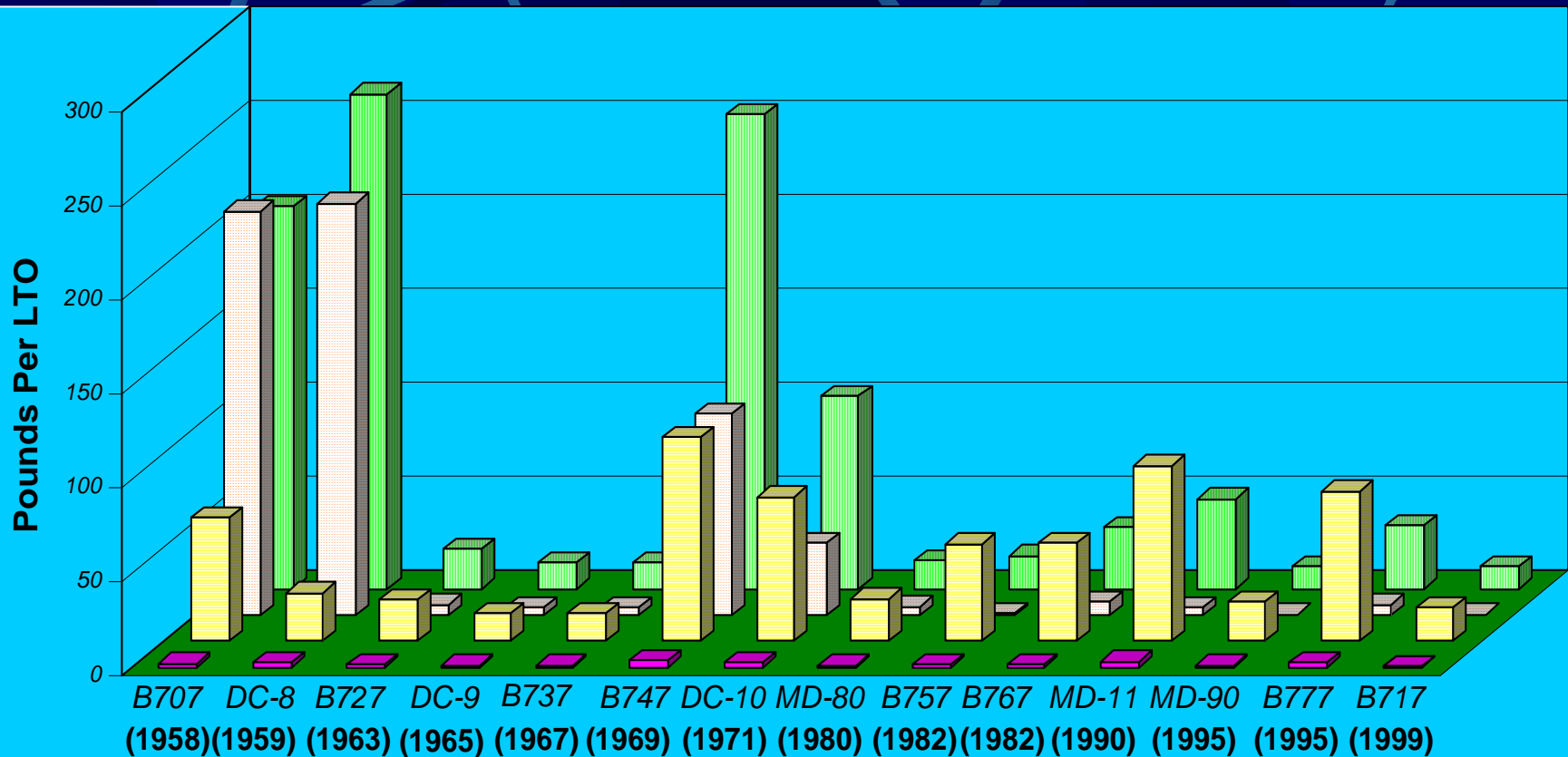
- Airports are relatively minor sources of metro air pollution
  - In Southern California, 3% of NO<sub>x</sub>, 1% SO<sub>x</sub>, 4% VOCs
- New aircraft engines burn much cleaner, EXCEPT for NO<sub>x</sub>
  - Fuel efficiency & noise reduction technologies have increased NO<sub>x</sub> emissions
- Ground support equipment and airport traffic are big emission sources



# Emissions from Airports compared to all other sources



# Aircraft Emissions



SOx

NOx

HC

CO

# Air Quality

- In air quality nonattainment and maintenance areas, airport projects must comply with State Implementation Plans (SIPs)
- Many airports participate in US DOE's Clean Cities Program
  - Promotes public/private partnerships for energy efficiency, alternative fuels, and emissions reduction

# CNG Fueling Station at O'Hare



- 550 GGE/day
- Storage capacity = 70,000 ft<sup>3</sup>
- Fast fill nozzles

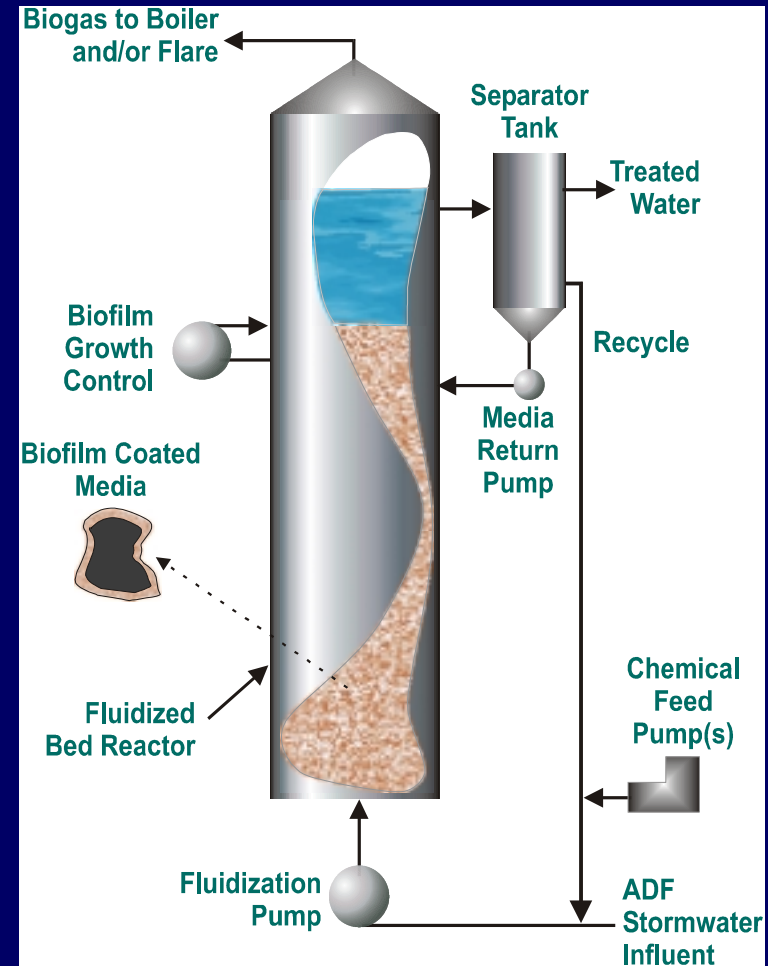


# Water Quality

- Fuel and chemical spills – Spill Control and Countermeasures Plans
- Aircraft and pavement deicing
  - Conversion from ethylene to propylene glycol
  - Diversion systems: route runoff to treatment plant when deicers are present; route to stormwater outlets when deicers are not present (e.g. Chicago O'Hare)
  - Biological treatment (e.g. Albany, NY)



# Biological Deicing Treatment Albany International Airport, NY



**Recipient: ACI-NA - 1999 Class A Environmental Achievement Award**  
**USEPA Region 2 - 2001 Environmental Quality Award**



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# **The Airport in the Region**

***Land Takings and Zoning  
Implications***

# Airports and Off-site Impacts

- Noise is the off-site impact most frequently complained about
- Complaints are from high noise areas near airport and under heavily used flight tracks
- Complaint area can extend several miles from airport – complaints from as far as 35 miles are not unheard of

# Legal Liability

- Legal doctrine makes airports liable for noise of aircraft using the airport
  - Despite their very limited control over use of the airport
- Suits for inverse condemnation (i.e., noise damages) are rarely successful
- Political pressure to limit airport development is the most common effect of serious noise problems

# International and Federal Response to Airport Noise

- The Balanced Approach to Noise Impact Reduction
  - Noise reduction at the source
  - Noise abatement operational procedures
  - Airport operating restrictions
  - Land use compatibility planning

# Land Use Compatibility Planning

- Increasingly important to the FAA  
because the other parts of the balanced approach have been wrung dry or rendered off limits!
- Land use compatibility toolkit
  - [www.aee.faa.gov/noise/lupitoolkit.htm](http://www.aee.faa.gov/noise/lupitoolkit.htm)
- Land Use Planning Forum
  - APA is an invited participant

# Land Use Compatibility Planning

**crucial to protecting long-term viability of airports**

- Considerations ...

- Planning and zoning for compatible land uses
- Zoning for airspace protection beneath the approaches
- Avoidance of bird attractants
- Fair disclosure in real estate sales

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# Thank you!

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