

TRANSPORTATION, AIR QUALITY, AND REMOTE SENSING LASER MEASUREMENTS OF AIR POLLUTION RELATED TO HIGHWAY TRAFFIC



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AIR QUALITY Clean Air Act, Section 309 Public Law 91-604, 1970; 1990 Clean Air Act Amendments

- Affects public health
- Affects quality of life
- Changes from day to day **Smog**
- AQI: Air Quality Index by EPA
- Information available to public

Point Sources of Emissions

Vehicle Emissions

- Fuel evaporation
- Refueling losses
- Combustion process

Source: EPA/US DOT

	1967	1998	1967	1998
CO	11.3	9.5	81.7	3.0
Volatile Organic Compounds	3.8	2.1	16.8	1.2
NO _x	24.5	8.0	3.2	0.6

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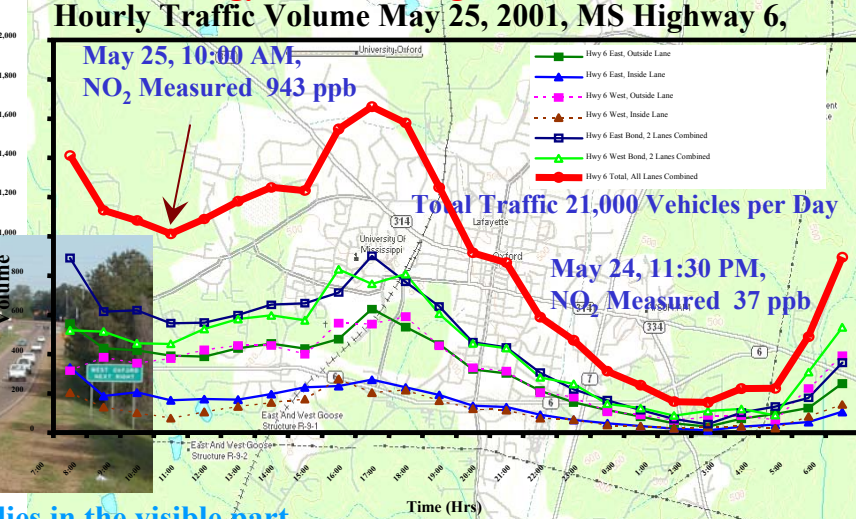


Environmental Assessment
 2000-2004

Air Quality Test Site Oxford, MS Highway 6



USDOT RSPA CAIT AIR QUALITY PROJECT Differential Absorption LIDAR (DIAL) Remote Sensing Technology for Measuring Air Pollution



NO₂ → Absorption band lies in the visible part of the spectrum. It absorbs blue color of sky, resulting in brown color smog.

Air Quality Index (AQI) for reporting daily air quality

Ground-level Ozone (Adverse Effects of Traffic, Urban Sprawl, and Weather)

- Severe irritant; coughing and stinging on eyes; health hazard
- Formed by photochemical reactions involving volatile organic compounds (VOC) and oxides of nitrogen in presence of sunlight

Over 100 "Ozone" Nonattainment Areas Designated by EPA



Oxford ITS Project

Traffic Modeling & Simulation
 Satellite and Airborne Remote Sensing

AQI	AIR QUALITY
301+	Hazardous
201-300	Very Unhealthy
151-200	Unhealthy
101-150	Unhealthy (for sensitive groups)
51-100	Moderate
0-51	Good

