

Reducing Pollution from Diesel Exhaust

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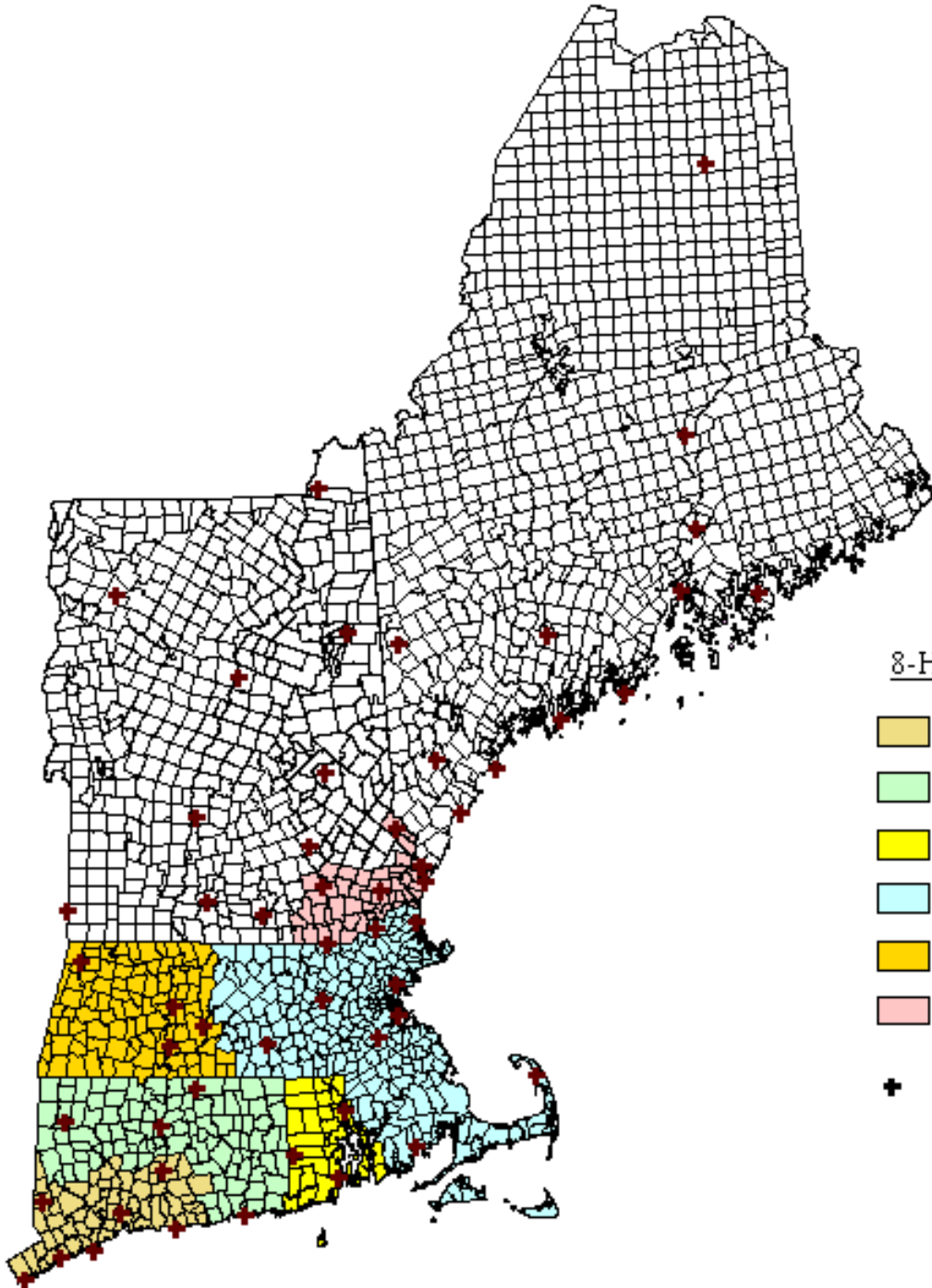
February 13, 2007










Why are we concerned about Diesel Exhaust?

- The Northeast has some of the highest asthma rates in the country
 - All six New England states have childhood asthma rates above 10 percent
- Diesel exhaust contains fine particles which can aggravate asthma and cause lung damage as well as premature death
- EPA has classified diesel particulate matter as a likely human carcinogen
- Diesel engines are significant contributors to air pollution, especially in urban areas
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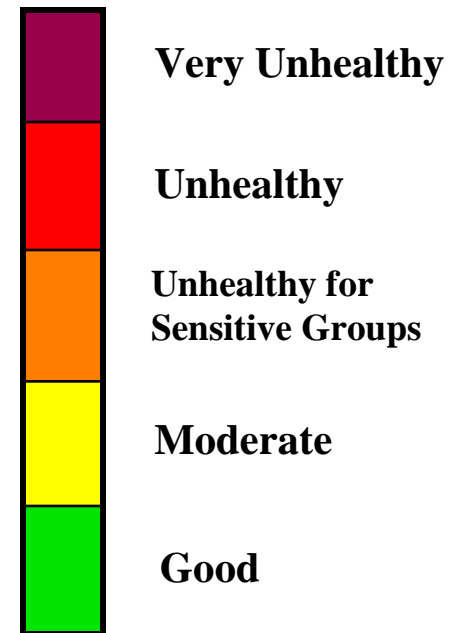
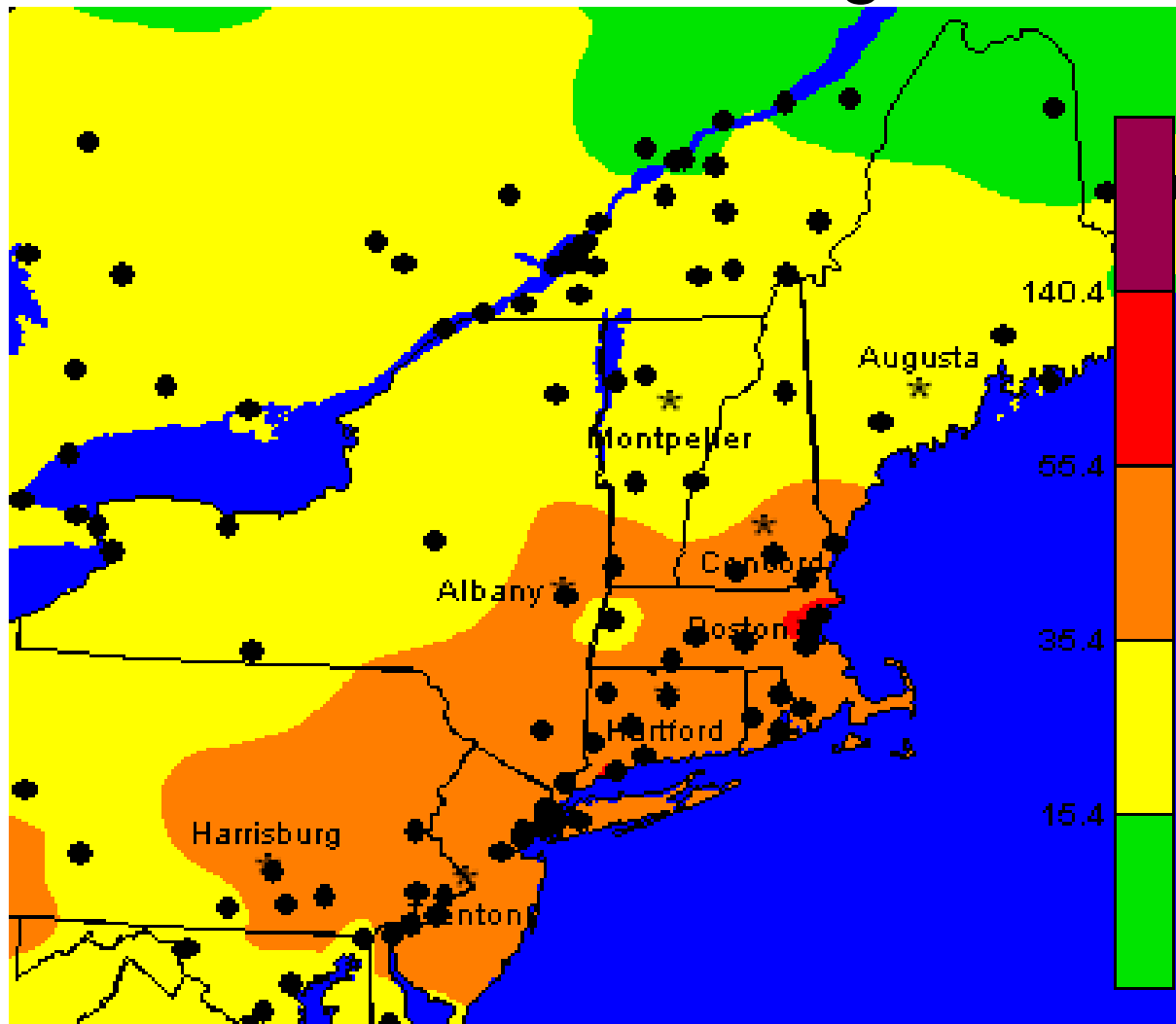
Ozone Nonattainment Areas in New England



8-HOUR OZONE NON-ATTAINMENT AREAS

-  NEW YORK-N. NEW JERSEY-LONG ISLAND, NY-NJ-CT
-  GREATER CONNECTICUT, CT
-  PROVIDENCE (ALL RI), RI
-  BOSTON-LAWRENCE-WORCESTER (E. MA), MA
-  SPRINGFIELD (W. MA), MA
-  BOSTON-MANCHESTER-PORTSMOUTH (SE), NH
-  2003 OZONE MONITORING STATION

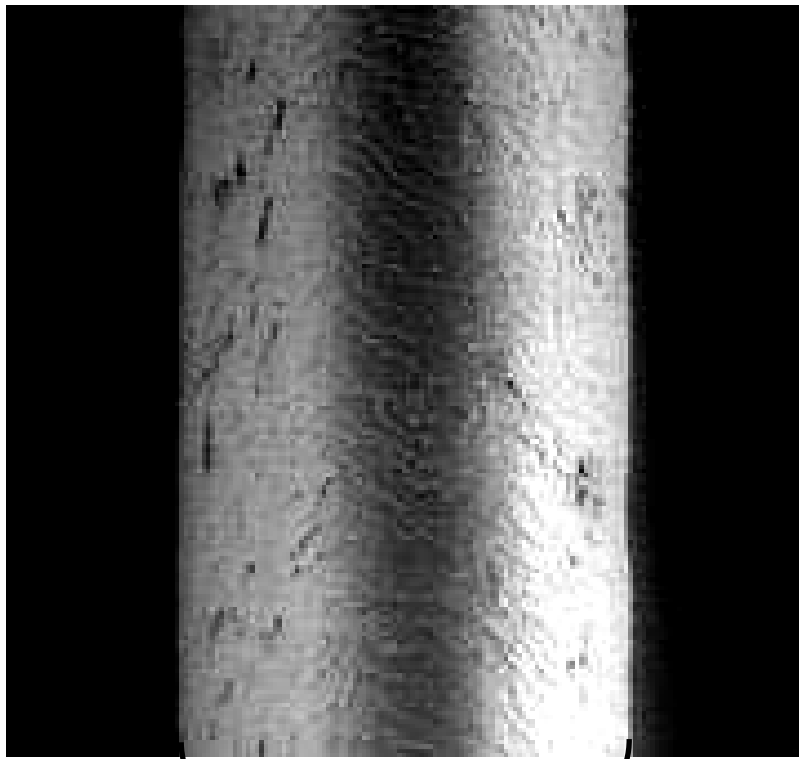
Unhealthy Levels of Fine Particles Can Occur Across New England



Fine particle concentrations on June 27, 2007

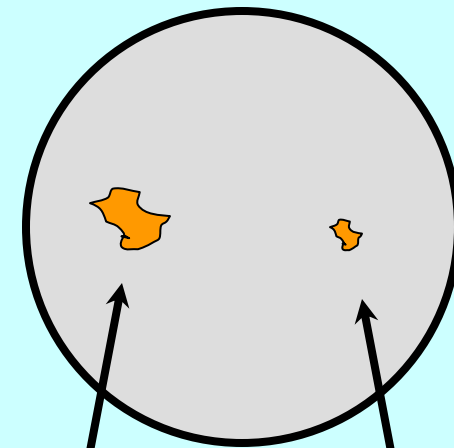
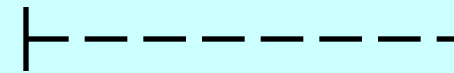
24-Hour Average PM 2.5 (ug/m3) June 27, 2007 UG/M3

Fine Particles – How Small are They?




Human Hair
(60 μm diameter)

Hair cross section (60 μm)



PM10
(10 μm)

PM2.5
(2.5 μm)



What is EPA doing to reduce Diesel Pollution?

- Setting stringent emission standards for new diesel engines
- Supporting voluntary efforts to retrofit existing engines with pollution controls
- Encouraging schools, businesses, institutions and communities to develop anti-idling policies
- Enforcing anti-idling rules
- Developing local and regional initiatives to reduce diesel pollution

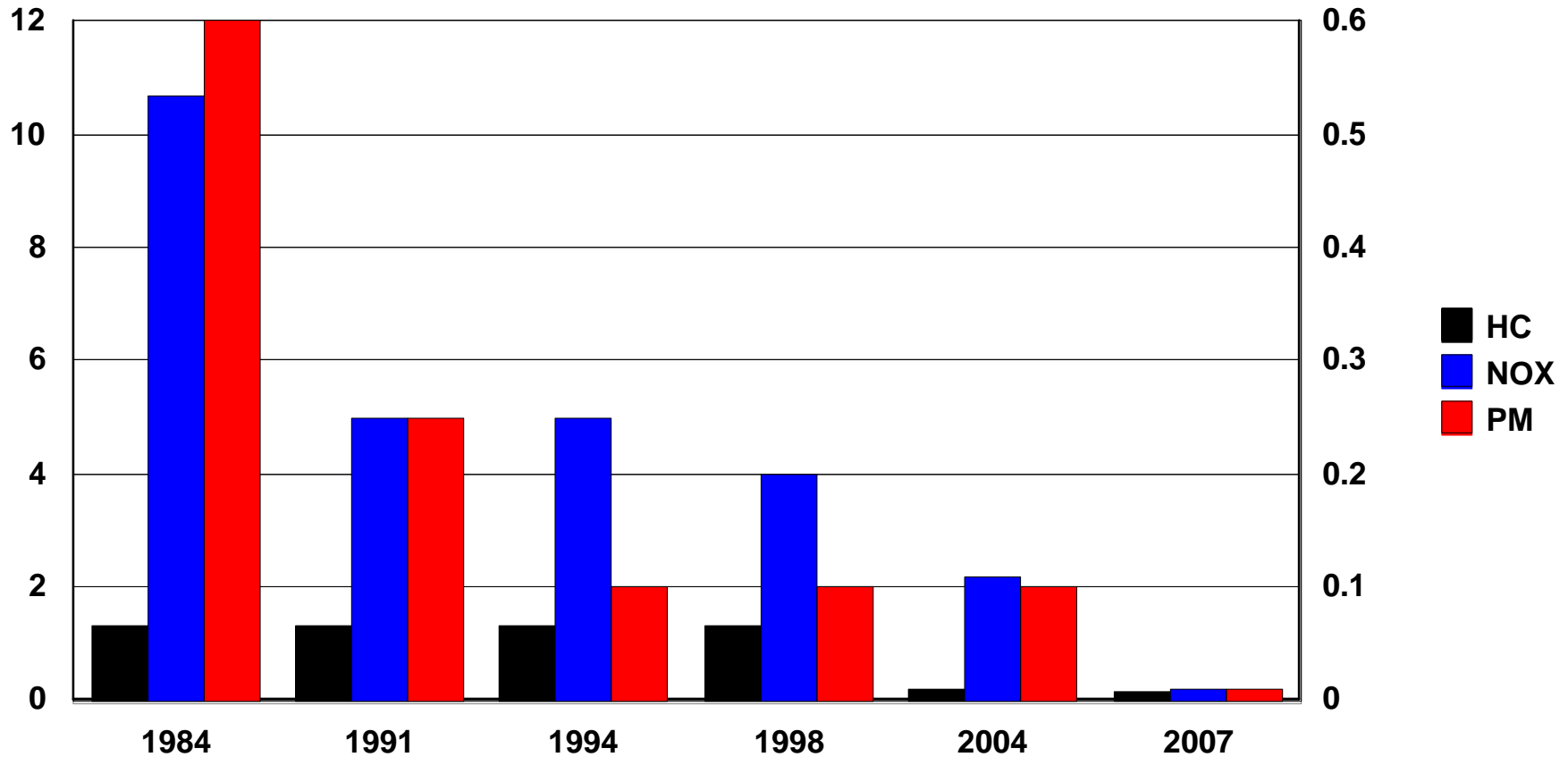
EPA's Clean Diesel Campaign – Regulations for New Engines

Year	Clean Diesel Action
2006	ULSD for all highway vehicles
2007-2010	New emission standards for heavy-duty trucks and buses
2007	LSD for all non road vehicles
2008-2015	New emission standards for non road engines
2010	ULSD for non-road engines
2012	ULSD for locomotives and marine vessels

EPA Standards for New Trucks and Buses

HC, NO_x
(g/bhp-hr*)

PM
(g/bhp-hr)



* Grams per brake horsepower hour



EPA's Clean Diesel Campaign

- National Voluntary Diesel Retrofit Program
 - Reduces pollution from **existing diesel engines** through the use of pollution controls and cleaner fuels
 - Projects underway to add advanced pollution controls to equipment used in MA Highway construction projects, vehicles at Massport's Conley Terminal, Boston tourist trolleys, and municipal vehicles in Cambridge
- SmartWay Transport
 - Voluntary partnership between EPA and the freight industry to increase energy efficiency and energy security and reduce air pollution and greenhouse gases
- Clean School Bus USA
 - Has provided \$31.5 million to school districts for school bus retrofit projects nationwide
 - Sixteen projects underway or completed in New England, totaling nearly \$3.7 million

Retrofits and Cleaner Fuels

- Diesel Oxidation Catalyst

- 20 - 30% PM reduction
- \$1,500 - \$2,500

- Particulate Reactor

- 50% PM Reduction
- \$3,000-\$5,000

- Diesel PM Filter

- 90% PM reduction
- Requires ULSD
- \$5,000 - \$9,000



- Ultra Low Sulfur Diesel Fuel

- 15-20% PM reduction
(compared to non-road fuel)

- Biodiesel

- 10% PM reduction (B20)
- 15 to 30 cents more per gallon

- Compressed Natural Gas

- 70 - 90% PM reduction
- \$30,000 more than diesel
- Require special maintenance facility and fueling infrastructure



Anti-Idling Rules and Policies in New England

- CT, MA, NH and RI have anti-idling rules
- VT is developing a school bus anti-idling rule
- CT & MA rules are included in the state air quality plan, and enforceable by EPA
- EPA has enforced the MA rule and imposed fines against:
 - Eleven bus operators at Logan Airport
 - Massachusetts Bay Transportation Authority
 - Wal-Mart
 - Paul Revere Transportation Company
- Every New England state has a program to limit school bus idling



Local Initiatives: Greater Boston Breathes Better (GB3)

- Comprehensive, multi-stakeholder initiative to improve air quality in the Boston area by increasing participation in EPA's voluntary transportation programs
- Partnership with government, private sector, institutions, and nonprofit organizations including:
 - EPA New England; Commonwealth of Massachusetts; Massport; MBTA; Cities of Boston, Cambridge and Somerville; Skanska USA Building Inc.; MASCO (a group of area hospitals); Massachusetts Institute of Technology; Harvard University; Environmental Defense; etc.

GB3: Assistance

- GB3 Partners provide:
 - Grants
 - Information sharing
 - Leadership stories
 - Technical assistance
 - Public relations and awareness
 - Public recognition
 - Action

GB3: Accomplishments

■ Partner successes include:

- **Massport** has retrofitted 14 non-road vehicles with DOCs and is using ULSD fuel in vehicles at its container terminal in South Boston.
- **Commonwealth of Massachusetts** has a subgrant program for diesel retrofits for both paving and nonroad construction equipment
- A group of area hospitals (**MASCO**) has retrofitted their fleet of 17 shuttle buses with particulate filters
- **Harvard University** is using biodiesel fuel in all its diesel vehicles and has adopted language requiring retrofits on construction equipment
- **Dana Farber Cancer Institute** has adopted language requiring retrofits on construction equipment

GB3: Lessons Learned



■ Take a sector based approach

- School buses
- Transit buses
- Construction

■ Identify your audience

- Find the decision-makers!
- Contractors
- Fleet Managers
- Policy Makers





Diesel Related Funding Opportunities

- 2008 NEDC Emissions Reduction Grant Program:
 - ~\$5 million for clean diesel projects
 - RFP expected March 2008
 - Grants expected Fall 2008



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